M3A78 PRO

Motherboard

E3906

First Edition
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Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment, Mercury-containing button cell battery) should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This manual contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports. This chapter also lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.

- **Chapter 2: BIOS setup**

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

- **Chapter 3: Software support**

  This chapter describes the contents of the support DVD that comes with the motherboard package.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key. Example: <Enter> means that you must press the Enter or Return key.
<Key1+Key2+Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: <Ctrl+Alt+D>
`Command`	Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets. Example: At the DOS prompt, type the command line: `format A:/S`

M3A78 PRO specifications summary

CPU	AMD® Socket AM2/AM2+ for AMD Phenom™ FX / Phenom™ / Athlon™/ Sempron™ processors AMD® Cool'n'Quiet™ Technology Supports CPU TDP up to 140W
Chipset	AMD 780G + SB700
System Bus	Up to 5200 MT/s; HyperTransport™ 3.0 interface for AM2+ CPU 2000 / 1600 MT/s for AM2 CPU
Memory	Dual-channel memory architecture - 4 x 240-pin DIMM sockets support unbufferred ECC/non-ECC DDR2 1066*/800/667 MHz memory modules - Supports up to 8 GB system memory *DDR2 1066 is supported by AM2+ CPUs only. Refer to www.asus.com or this user manual for the Memory QVL (Qualified Vendors Lists). ** When installing total memory of 4GB capacity or more, Windows 32-bit operation system may onlyl recognize less than 3GB. Hence, a total installed memory of less than 3GB is recommended.
VGA	Integrated ATI Radeon™ HD 3200 GPU - Hybrid CrossFire™ support (For Windows Vista only) - Supports HDMI™ Technology (HDCP compliant) with max. resolution up to 1920 x 1200 (1080P) - Supports DVI with max. resolution up to 1600 x 1200 @ 60Hz - Supports D-Sub with max. resolution up to 2560 x 1440 @ 75 Hz - Supports Microsoft® DirectX 10, OpenGL 2.0, Pixel Shader 4.0 - Maximum shared memory of 256MB
Expansion Slots	1 x PCIe x16 slot (Supports PCIe 2.0/1.0 architecture) 2 x PCIe x1 slots 3 x PCI 2.2 slots
Storage	1 x Ultra DMA 133/100 interface 6 x SATA 3.0 Gb/s connectors supporting RAID 0, 1, and 10 configuration
LAN	Realtek® 8111C Gigabit LAN controller
High Definition Audio	Realtek® ALC1200 8-channel High Definition audio CODEC - Supports Jack-Detection, Enumeration, Multi-Streaming, and Jack-Retasking - Coaxial S/PDIF Out port at back I/O
USB	12 x USB 2.0 ports (8 at mid-board; 4 on the rear panel)

(continued on the next page)

M3A78 PRO specifications summary

ASUS Unique Features	**ASUS Express Gate:** - Web browser, file downloading and uploading* - Further free features upgradable * File downloading and uploading through USB devices only. **ASUS Quiet Thermal Solution:** - ASUS 4+1 Phase Power Design - ASUS AI Gear 2 - ASUS AI Nap - ASUS Q-Fan 2 **ASUS Crystal Sound** - ASUS Noise Filter **ASUS EZ DIY** - ASUS Q-Shield - ASUS Q-Connector - ASUS O.C. Profile - ASUS EZ Flash 2
Other Features	Uses 100% All High-quality Conductive Polymer Capacitors! ASUS MyLogo 2™
ASUS Exclusive Overclocking Features	**Intelligent overclocking tools:** - AI Overclocking (Intelligent CPU Frequency Tuner) - ASUS AI Booster Utility **Precision Tweaker:** - vCore: Adjustable CPU voltage at 0.0125V increment - vDIMM: 8-step DRAM voltage control - vChipset: 4-step Chipset voltage control **SFS (Stepless Frequency Selection):** - FSB tuning from 200MHz up to 600MHz at 1MHz increment - Memory tuning from 533MHz up to 1066MHz - PCI Express frequency tuning from 100MHz to 200 MHz at 1MHz increment **Overclocking protection:** - ASUS C.P.R. (CPU Parameter Recall)

(continued on the next page)

M3A78 PRO specifications summary

Rear panel I/O ports	1 x PS/2 keyboard port (purple) 1 x PS/2 mouse port (green) 1 x S/PDIF Out (Coaxial) 1 x HDMI Out 1 x D-Sub 1 x LAN (RJ-45) 4 x USB 2.0/1.1 8-channel audio I/O
Internal I/O connectors	4 x USB connectors support additional 8 USB ports 1 x Floppy disk drive connector 1 x COM connector 1 x IDE connector 6 x SATA connectors 1 x CPU Fan connector 1 x Chassis Fan connector 1 x Power Fan connector 1 x Front panel audio connector 1 x S/PDIF Out Header 1 x Chassis Intrusion connector 1 x DVD audio in 1 x 24-pin ATX Power connector 1 x 4-pin ATX 12V Power connector 1 x System Panel (Q-Connector)
BIOS features	8 Mb Flash ROM, AMI BIOS, PnP, DMI 2.0, WfM2.0, SM BIOS 2.3, ACPI 2.0a, ASUS EZ Flash 2
Support DVD contents	Drivers Express Gate ASUS PC Probe II ASUS Update AMD AOD Anti-Virus Utility (OEM version)
Form factor	ATX form factor: 12 in x 9.6 in (30.5 cm x 24.4 cm)

***Specifications are subject to change without notice.**

This chapter describes the motherboard features and the new technologies it supports.

1 Product introduction

1.1 Welcome!

Thank you for buying an ASUS® M3A78 PRO motherboard!

The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of ASUS quality motherboards!

Before you start installing the motherboard, and hardware devices on it, check the items in your package with the list below.

1.2 Package contents

Check your motherboard package for the following items.

Motherboard	ASUS M3A78 PRO motherboard
Cables	Serial ATA signal and power cable Ultra DMA 133/100 cable Floppy disk drive cable
Accessories	1 x Q-shield 1 x HDMI to DVI Convertor 2 in 1 Q-connector
Application DVD	ASUS motherboard support DVD
Documentation	User guide

If any of the above items is damaged or missing, contact your retailer.

1.3 Special features

1.3.1 Product highlights

Green ASUS

This motherboard and its packaging comply with the European Union's Restriction on the use of Hazardous Substances (RoHS). This is in line with the ASUS vision of creating environment-friendly and recyclable products/packaging to safeguard consumers' health while minimizing the impact on the environment.

AMD® Socket AM2+ Phenom™ FX / Phenom / Athlon™ / Sempron™ CPU support

This motherboard supports AMD® Socket AM2+ multi-core processors with unique L3 cache and delivers better overclocking capabilities with less power consumption. It features dual-channel DDR2 1066 memory support and accelerates data transfer rate up to 5200MT/s via HyperTransport™ 3.0 based system bus. See page 1-11 for details.

HyperTransport™ 3.0 support

HyperTransport™ 3.0 technology provides 2.6 times more bandwidth than HyperTransport™ 1.0, radically improving system efficiency to create a smoother, faster computing environment.

AMD® Socket AM2 Athlon™ Series / Sempron™ CPU support

This motherboard supports AMD® Socket AM2 Athlon™ Series / Sempron™ processors. It features 2000 / 1600 MT/s HyperTransport™-based system bus, dual-channel un-buffered DDR2 800 memory support, and AMD® Cool 'n' Quiet™ Technology. See page 1-11 for details.

AMD® 780G Chipset

AMD® 780G Chipset is designed to support up to 5200MT/s HyperTransport™ 3.0 (HT 3.0) interface speed and PCI Express™ 2.0 x16 graphics. It is optimized with AMD®'s latest AM2+ and multi-core CPUs to provide excellent system performance and overclocking capabilities.

Native DDR2 1066 support

This motherboard provides native DDR2 1066 support. It provides faster data transfer rate and more bandwidth to increase memory computing efficiency, enhancing system performance in 3D graphics and other memory demanding applications. See page 1-15 for details.

DDR2 1066 is supported by some of the AM2+ CPUs only. Refer to www.asus.com for the supported CPU models.

AMD® Hybrid CrossFireX Technology

Hybrid CrossFireX Technology is a unique multi-GPU technology combining the onboard GPU and the discrete graphics card together to enhance 3D graphics performance. See page 1-26 and 3-18 for details.

Visit www.amd.com for the Hybrid CrossfireX selected GPUs.

HDMI Interface

HDMI (High-Definition Multimedia Interface) is the first and only industry-supported, uncompressed, all digital audio and video interface via a single cable and is HDCP compliant aloowing playback of HD DVD, Blu-Ray Disc and other protected content. See page 1-30 for details.

PCIe 2.0 support

This motherboard supports the latest PCIe 2.0 devices for double speed and bandwidth which enhances system performance. See page 1-26 for details.

Serial ATA 3.0 Gb/s technology

This motherboard supports the next-generation hard disk drives based on the Serial ATA (SATA) 3Gb/s storage specifications, delivering enhanced scalability and doubling the bus bandwidth for high-speed data retrieval and save. It allows RAID 0, 1, and 10 configurations for two SATA connectors. See page 1-34 for details.

S/PDIF digital sound ready

This motherboard provides convenient connectivity to external home theater audio systems via coaxial S/PDIF (SONY-PHILIPS Digital Interface) Out jack. It allows digital audio transferring without converting it to analog format, and therefore well preserves signal quality. See page 1-30 for details.

High Definition Audio

Enjoy high-end sound quality on your PC! The onboard 8-channel HD audio (High Definition Audio, previously codenamed Azalia) CODEC enables high-quality 192KHz/24-bit audio output that simultaneously sends different audio streams to different destinations. You can now talk to your partners on the headphones while playing multi-channel network games. See page 1-29 for details.

1.3.2 ASUS unique features

ASUS Quiet Thermal Solution

ASUS Quiet Thermal solution makes system more stable and enhances the overclocking capability.

AI Gear 2

AI Gear 2 allows you to choose from profiles to adjust CPU frequency and vCore voltage, minimizing system noise and saving CPU power consumption at most. You can real-time chnage the mode under operating system to suit your needs.

AI Nap

With AI Nap, the system can continue running at minimum power and noise when you are temporarily away. To wake the system and return to the OS environment, simply click the mouse or press a key.

Q-Fan 2

ASUS Q-Fan 2 technology intelligently adjusts both CPU fan and chassis fan speeds according to system loading to ensure quiet, cool and efficient operation. See page 2-34 for details.

ASUS Crystal Sound

This feature can enhance speech-centric applications like Skype, online game, video conference and recording.

Noise Filter

This feature detects repetitive and stationary noises (non-voice signals) like computer fans, air conditioners, and other background noises then eliminates it in the incoming audio stream while recording.

ASUS EZ DIY

ASUS EZ DIY feature collection provides you easy ways to install computer components, update the BIOS or back up your favorite settings.

ASUS Express Gate

Just 5 seconds to boot up, the ASUS Express Gate allows you to instantly surf the Internet without entering Windows. You can now enjoy Skype, IM, YouTube, webmail and Internet file downloads and sharing whenever and wherever you want! See page 2-39 and 3-10 for details .

- The bootup speed depends on system configurations.
- Due to chipset limitation, ASUS Express Gate supports USB devices or SATA HDDs (IDE mode) connected to SATA port 1-4 only. Set the **SATA Operation Mode** item in the BIOS to [IDE] before installing and using ASUS Express Gate.
- Currently, ASUS Express Gate DOES NOT support PATA IDE HDDs. Visit www.asus.com for future BIOS and Express Gate software updates.

ASUS Q-Shield

The specially designed ASUS Q-Shield does without the usual “fingers”—making it convenient and easy to install. With better electric conductivity, it ideally protects your motherboard against static electricity and shields it against Electronic Magnetic Interference (EMI).

ASUS Q-Connector

ASUS Q-Connector allows you to easily connect or disconnect the chassis front panel cables to the motherboard. This unique module eliminates the trouble of connecting the system panel cables one at a time and avoiding wrong cable connections. See page 1-40 for details.

ASUS O.C. Profile

The motherboard features the ASUS O.C. Profile that allows users to conveniently store or load multiple BIOS settings. The BIOS settings can be stored in the CMOS or a separate file, giving users freedom to share and distribute their favorite settings. See page 2-40 for details.

ASUS EZ Flash 2

ASUS EZ Flash 2 is a user-friendly BIOS update utility. Simply press the predefined hotkey to launch the utility and update the BIOS without entering the OS. Update your BIOS easily without preparing a bootable diskette or using an OS-based flash utility. See page 2-4 for details.

Smart Support DVD

This feature provides a checklist that allows the user to know which drivers are already installed, as well as those that are not. When using ASUS PC Probe II, you can easily monitor the critical components of the computer.

ASUS MyLogo 2™

This feature allows you to convert your favorite photo into a 256-color boot logo for a more colorful and vivid image on your screen. See page 2-35 for details.

1.3.3 ASUS intelligent performance and overclocking features

Precision Tweaker

Precision Tweaker allows the user to adjust the northbridge voltage, southbridge voltage, and DRAM voltage in 0.02V steps to achieve the most precise settings for the ultimate customized overclocking configuration.

AI Booster

The ASUS AI Booster allows you to overclock the CPU speed in Windows environment without the hassle of booting the BIOS.

C.P.R. (CPU Parameter Recall)

The C.P.R. feature of the motherboard BIOS allows automatic re-setting to the BIOS default settings in case the system hangs due to overclocking. When the system hangs due to overclocking, C.P.R. eliminates the need to open the system chassis and clear the RTC data. Simply shut down and reboot the system, and the BIOS automatically restores the CPU default setting for each parameter.

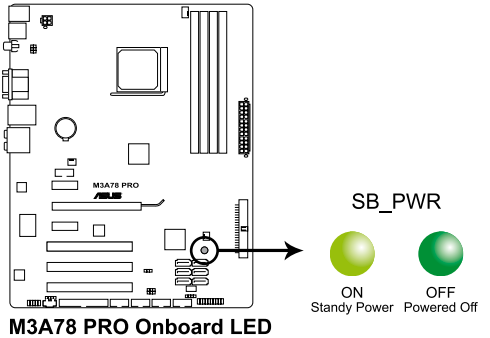
1.4 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

Onboard LED

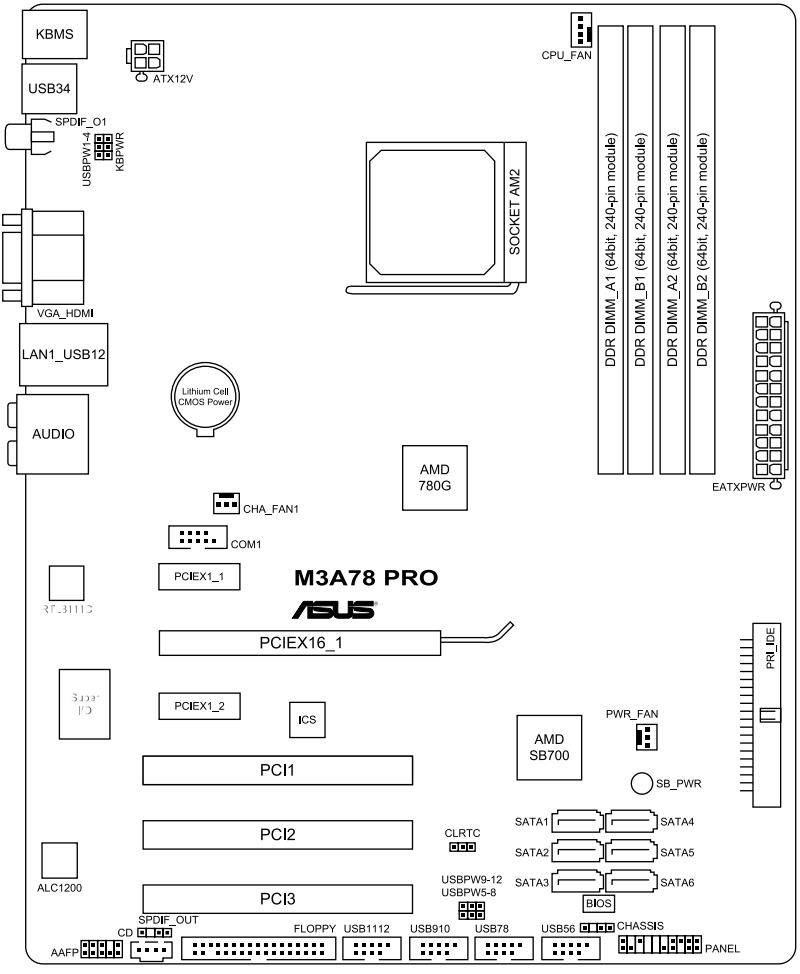
The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.



M3A78 PRO Onboard LED

1.5 Motherboard overview

1.5.1 Motherboard layout



Refer to **1.10 Connectors** for more information about rear panel connectors and internal connectors.

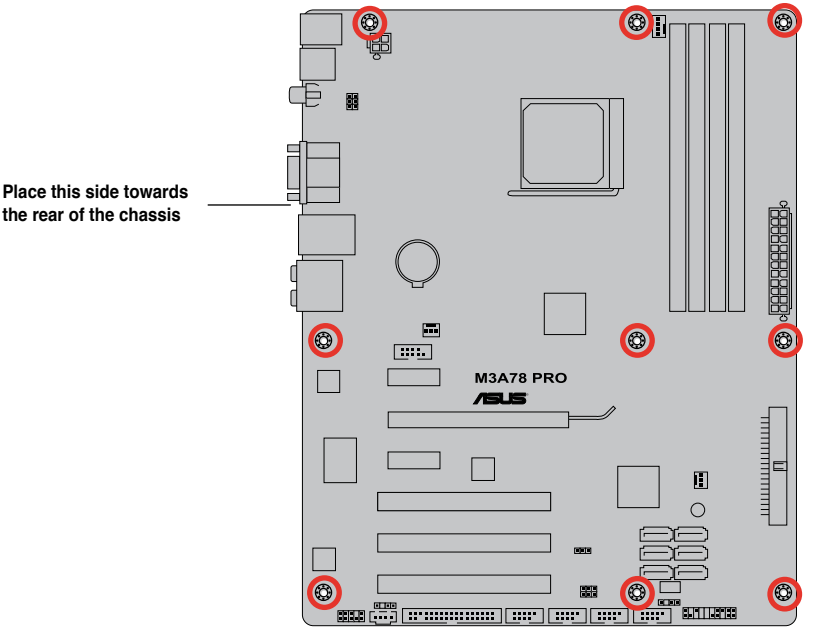
1.5.2 Placement direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

1.5.3 Screw holes

Place nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis.

Do not overtighten the screws! Doing so can damage the motherboard.



1.6 Central Processing Unit (CPU)

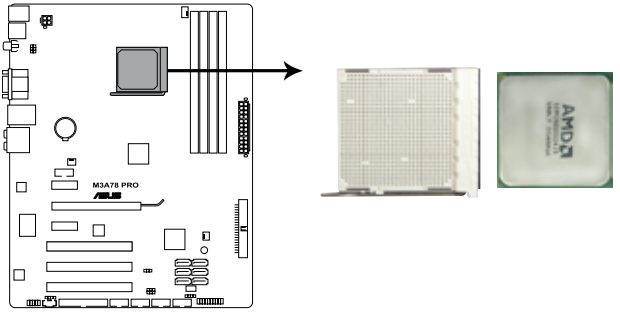
The motherboard comes with an AM2+/AM2 socket designed for the AMD® Socket AM2+ Phenom™ FX / Phenom™ / Athlon™ / Sempron™ processors or for Socket AM2 Athlon Series / Sempron processors.

The AM2 socket has a different pinout from the 940-pin socket designed for the AMD Opteron™ processor. Make sure you use a CPU is designed for the AM2 socket. The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

1.6.1 Installing the CPU

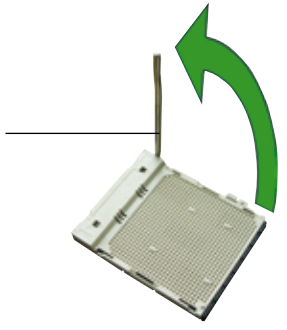
To install a CPU.

1. Locate the CPU socket on the motherboard.



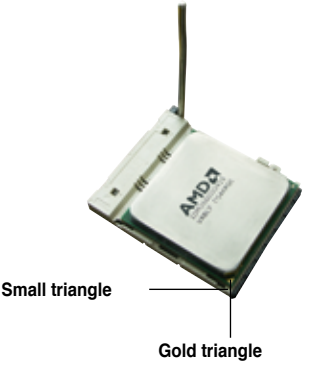
M3A78 PRO CPU socket AM2

2. Unlock the socket by pressing the lever sideways, then lift it up to a 90°-100° angle.



Make sure that the socket lever is lifted up to 90°-100° angle, otherwise the CPU does not fit in completely.

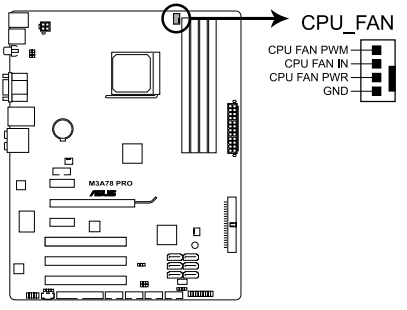
3. Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.
4. Carefully insert the CPU into the socket until it fits in place.



The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to prevent bending the pins and damaging the CPU!

5. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.
6. Install a CPU heatsink and fan following the instructions that came with the heatsink package.

7. Connect the CPU fan cable to the CPU_FAN connector on the motherboard.



M3A78 PRO CPU fan connector

Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

1.6.2 Installing the heatsink and fan

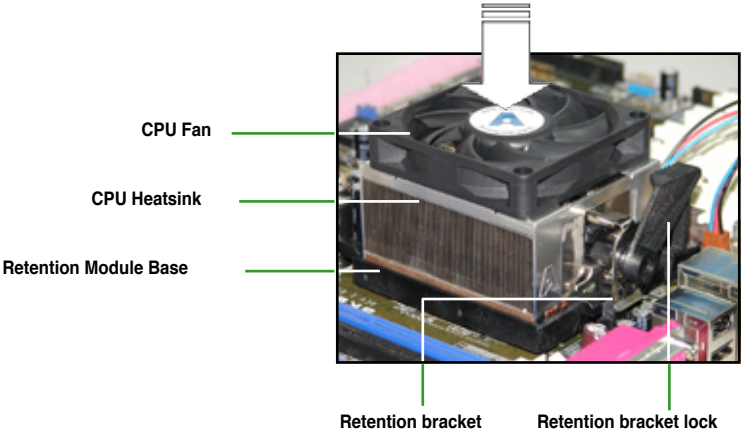
The AMD® Phenom™ FX / Phenom™ / Athlon™ / Sempron™ processors require a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

Make sure that you use only qualified heatsink and fan assembly.

Follow these steps to install the CPU heatsink and fan.

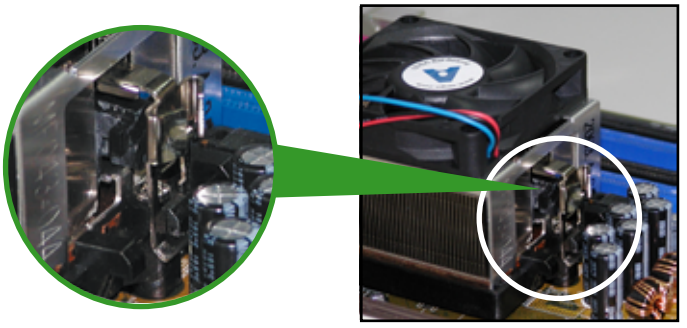
1. Place the heatsink on top of the installed CPU, making sure that the heatsink fits properly on the retention module base.

- The retention module base is already installed on the motherboard upon purchase.
- You do not have to remove the retention module base when installing the CPU or installing other motherboard components.
- If you purchased a separate CPU heatsink and fan assembly, make sure that a Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.



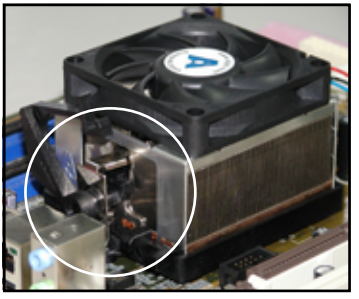
Your boxed CPU heatsink and fan assembly should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.

2. Attach one end of the retention bracket to the retention module base.

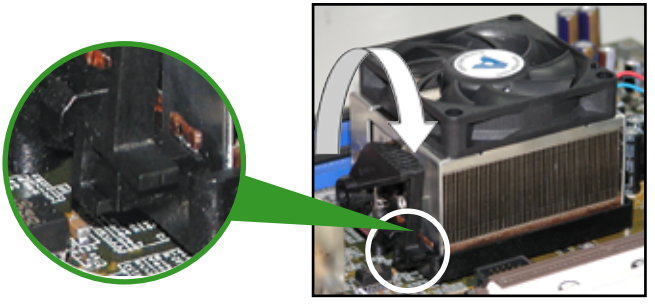


3. Align the other end of the retention bracket (near the retention bracket lock) to the retention module base. A clicking sound denotes that the retention bracket is in place.

Make sure that the fan and heatsink assembly perfectly fits the retention mechanism module base; otherwise, you cannot snap the retention bracket in place.



4. Push down the retention bracket lock on the retention mechanism to secure the heatsink and fan to the module base.



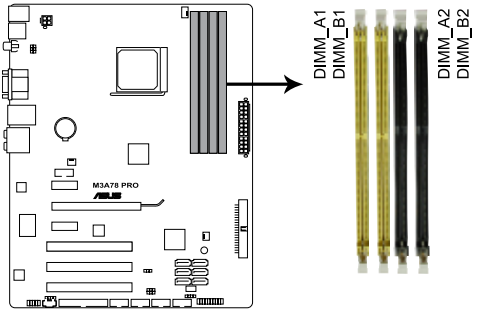
1.7 System memory

1.7.1 Overview

The motherboard comes with four Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets.

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket.

The figure illustrates the location of the DDR2 DIMM sockets:



M3A78 PRO 240-pin DDR2 DIMM sockets

Channel	Sockets
Channel A	DIMM_A1 and DIMM_A2
Channel B	DIMM_B1 and DIMM_B2

1.7.2 Memory configurations

You may install 512 MB, 1 GB, and 2 GB unbuffered ECC/non-ECC DDR2 DIMMs into the DIMM sockets.

Recommended memory configurations

Mode	Sockets			
	DIMM_A1	DIMM_A2	DIMM_B1	DIMM_B2
Single-Channel	Populated	–	–	–
	–	–	Populated	–
Dual-channel (1)	Populated	–	Populated	–
Dual-channel (2)	Populated	Populated	Populated	Populated

- You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.
- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.
- If you install four 1 GB memory modules, the system may only recognize less than 3GB because the address space is reserved for other critical functions. This limitation appears on Windows® XP/Vista 32-bit operation system which does not support Physical Address Extension (PAE).
- If you install Windows® XP/Vista 32-bit operation system, a total memory of less than 3GB is recommended.
- This motherboard does not support memory modules made up of 128 Mb chips.

Due to OS limitation, this motherboard can only support up to 8 GB on the operating systems listed below. You may install a maximum of 2 GB DIMMs on each slot.

64-bit
Windows® XP Professional x64 Edition
Windows® Vista x64 Edition

M3A78 PRO Motherboard Qualified Vendors Lists (QVL)
DDR2-1066 MHz capability for AM2+ CPU

Size	Vendor	Chip No.	CL	Chip Brand	SS/ DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
512MB	KINGSTON	E5108AJBG-1J-E	N/A	ELPIDA	SS	KVR1066D2N7/512			•
1GB	KINGSTON	E5108AJBG-1J-E	N/A	ELPIDA	SS	KVR1066D2N7/1G			•

M3A78 PRO Motherboard Qualified Vendors Lists (QVL)
DDR2-800 MHz capability for AM2+ CPU

Size	Vendor	Chip No.	CL	Chip Brand	SS/DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
512MB	A-DATA	AD29608A8A-25EG	N/A	N/A	SS	M2OAD6G3H3160G1E53	•		•
1GB	A-DATA	AD26908A8A-25EG	N/A	N/A	DS	M2OAD6G3I4170I1E58	•	•	•
2GB	A-DATA	AD20908A8A-25EG	N/A	A-DATA	DS	M2OAD6H3J4171Q1E52	•	•	•
512MB	Apacer	AM4B5708JQJS8E	N/A	APACER	SS	78.91G9I.9K5	•	•	•
1GB	Apacer	AM4B5808CQJS8E	N/A	APACER	SS	78.01GA0.9K5	•	•	•
2GB	Apacer	AM4B5808CQJS8E	5	APACER	DS	78.A1GA0.9K4	•	•	
1GB	CORSAIR	Heat-Sink Package	4	N/A	DS	CM2X1024-6400C4	•	•	•
1GB	Crucial	Heat-Sink Package	4	N/A	DS	BL12864AA804.16FD	•		
1GB	Crucial	Heat-Sink Package	4	N/A	DS	BL12864AL804.16FD3	•	•	•
1GB	Crucial	Heat-Sink Package	4	N/A	DS	BL12864AA804.16FD3	•	•	•
1GB	ELPIDA	E1108AB-8E-E(ECC)	5	ELPIDA	SS	EBE10EE8ABFA-8E-E	•	•	•
2GB	ELPIDA	E1108AB-8E-E(ECC)	5	ELPIDA	DS	EBE21EE8ABFA-8E-E	•	•	•
1GB	G.SKILL	Heat-Sink Package	N/A	N/A	DS	F2-6400CL4D-2GBPK	•	•	•
1GB	G.SKILL	Heat-Sink Package	N/A	N/A	DS	F2-6400PHU2-2GBNR	•		•
1GB	G.SKILL	Heat-Sink Package	N/A	N/A	DS	F2-6400CL4D-2GBHK	•	•	
4GB (Kit of 2)	G.SKILL	Heat-Sink Package	4	N/A	DS	F2-6400CL4D-4GBPK	•	•	•
4GB (Kit of 2)	G.SKILL	Heat-Sink Package	6	N/A	DS	F2-6400CL6D-4GBMQ	•	•	•
4GB (Kit of 2)	G.SKILL	Heat-Sink Package	5	N/A	DS	F2-6400CL5D-4GBPQ	•	•	•
2GB	GEIL	GE24GB800C5DC	5-5-5-15	N/A	DS	Heat-Sink Package	•	•	•
2GB	GEIL	GE28GB800C5QC	5-5-5-15	N/A	DS	Heat-Sink Package	•	•	•
2GB	GEIL	GE28GB800C4QC	4-4-4-12	N/A	DS	Heat-Sink Package	•	•	•
2GB	GEIL	GE24GB800C4DC	4-4-4-12	N/A	DS	Heat-Sink Package	•	•	•
2GB	GEIL	GB24GB6400C5DC	5-5-5-15	GEIL	DS	GL2L128M88BA25AB	•	•	•
512MB	Hynix	HY5PS12821CFP-S5	5-5-5	Hynix	SS	HYMP564U64CP8-S5	•	•	•
1GB	Hynix	HY5PS12821CFP-S5	5-5-5	Hynix	DS	HYMP512U64CP8-S5	•	•	
512MB	KINGMAX	KKA8FEIBF-HJK-25A	N/A	KINGMAX	SS	KLDC28F-A8KI5	•	•	•
1GB	KINGMAX	KKA8FEIBF-HJK-25A	N/A	KINGMAX	DS	KLDD48F-ABKI5	•	•	
2GB	KINGMAX	KKB8FFBXF-CFA-25A	N/A	KINGMAX	DS	KLDE88F-B8KB5	•	•	•
512MB	KINGSTON	E5108AJBG-8E-E	N/A	ELPIDA	SS	KVR800D2N5/512	•	•	•
1GB	KINGSTON	Heat-Sink Package	4-4-4-12	N/A	SS	KHX6400D2LLK2/1GN	•		
1GB	KINGSTON	Heat-Sink Package	4-4-4-12	N/A	DS	KHX6400D2LL/1G	•		
1GB	KINGSTON	V59C1512804QBF25	N/A	N/A	DS	KVR800D2N5/1G	•	•	•
2GB	KINGSTON	E1108ACBG-8E-E	N/A	ELPIDA	DS	KVR800D2N5/2G	•	•	•
512MB	NANYA	NT5TU64M8BE-25C	5	NANYA	SS	NT512T64U880BY-25C	•	•	•
1GB	NANYA	NT5TU64M8BE-25C	5	NANYA	DS	NT1GT64U8HB0BY-25C	•	•	•
1GB	NANYA	NT5TU64M8CE-25D	N/A	NANYA	DS	NT1GT64U8HCOBY-25D	•	•	•

M3A78 PRO Motherboard Qualified Vendors Lists (QVL)
DDR2-800 MHz capability for AM2+ CPU (continued)

Size	Vendor	Chip No.	CL	Chip Brand	SS/DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
2GB	NANYA	NT5TU128M8CE-AC	5	NANYA	DS	NT2GT64U8HC0BY-AC	•	•	•
1GB	OCZ	Heat-Sink Package	5	N/A	DS	OCZ2T8002GK	•		•
2GB	OCZ	Heat-Sink Package	5-4-4-15	N/A	DS	OCZ2P8004GK	•	•	•
4GB (Kit of 2)	OCZ	Heat-Sink Package	5-4-4	N/A	DS	OCZ2P8004GK	•	•	•
2GB	PSC	A3R1GE3CFF734MAA0E	5	PSC	DS	AL8E8F73C-8E1	•	•	•
2GB	Qimonda	HYB18T1G800C2F-25F	5	QIMONDA	DS	HYS64T256020EU-25F-C2	•	•	•
2GB	Qimonda	HYB18T1G800C2F-2.5	6	QIMONDA	DS	HYS64T256020EU-2.5-C2	•	•	•
512MB	SAMSUNG	K4T51083QG	6	SAMSUNG	SS	M378T6553GZS-CF7	•	•	•
1GB	SAMSUNG	K4T1G084QQ	6	SAMSUNG	SS	M378T2863QZS-CF7	•	•	•
1GB	SAMSUNG	K4T1G084QQ(ECC)	6	SAMSUNG	SS	M391T2863QZ3-CF7	•	•	•
1GB	SAMSUNG	K4T51083QG	6	SAMSUNG	DS	M378T2953GZ3-CF7	•	•	•
2GB	SAMSUNG	K4T1G084QQ	6	SAMSUNG	DS	M391T5663QZ3-CF7	•	•	•
2GB	SAMSUNG	K4T1G084QQ(ECC)	6	SAMSUNG	DS	M378T5663QZ3-CF7	•	•	•
512MB	Super Talent	Heat-Sink Package	N/A	N/A	SS	T800UA12C4		•	•
1GB	Super Talent	Heat-Sink Package	N/A	N/A	DS	T800UB1GC4	•	•	•
1GB	Aeneon	AET93R25DB	N/A	Aeneon	DS	AET760UD00-25DB97X	•	•	
2GB	Aeneon	AET02R25DC	N/A	Aeneon	DS	AET860UD00-25DC08S	•	•	•
2GB	Aeneon	AET03R25DC	5	Aeneon	DS	AET860UD00-25DC08X	•	•	•
1GB	Asint	DDRII1208-GE	N/A	Asint	SS	SLY2128M8-JGE			•
2GB	Asint	DDRII1208-GE	N/A	Asint	DS	SLZ2128M8-JGE	•	•	•
1GB	CENTURY	HY5PS12821BFP-S5	N/A	Hynix	DS	28VOH8	•		
1GB	Elixir	N2TU51280BE-25C	5	Elixir	DS	M2Y1G64TU8HB0B-25C	•	•	
1GB	Oci	64M8PC6400	5	Jnfinity	DS	04701G16CZ5D2A	•	•	•
512MB	Patriot	PM64M8D2BU-25EC	N/A	N/A	SS	PSD251280081	•		
1GB	Patriot	PM64M8D2BU-25PAC	5	Patriot	DS	PSD21G8002		•	
2GB	Patriot	PM128M8D2BU-25KC	5	Patriot	DS	PSD22GB002	•	•	•
1GB	UMAX	U2S12D30TP-8E	N/A	UMAX	DS	D48001GP3-63BJU	•	•	
2GB	UMAX	U2S12D30TP-8E	N/A	UMAX	DS	D48002GP0-73BCU	•	•	•

M3A78 PRO Motherboard Qualified Vendors Lists (QVL)
DDR2-667 MHz capability for AM2+ CPU

Size	Vendor	Chip No.	CL	Chip Brand	SS/ DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
512MB	A-DATA	AD29608A8A-3EG	5	A-DATA	SS	M2OAD5G3H3166I1C52		•	
1GB	A-DATA	AD29608A8A-3EG	5	A-DATA	DS	M2OAD5G3I4176I1C52	•		•
2GB	A-DATA	NT5TU128M8BJ-3C	N/A	N/A	DS	M2ONY5H3J4170I1C5Z	•	•	•
512MB	Apacer	AM4B5708JQJS7E	N/A	APACER	SS	78.91G92.9K5	•	•	•
1GB	Apacer	AM4B5808CQJS7E	N/A	APACER	SS	78.01G9O.9K5	•	•	•
2GB	Apacer	AM4B5808CQJS7E	N/A	APACER	DS	78.A1G9O.9K4	•	•	•
512MB	CORSAIR	64M8CFEG	N/A	N/A	SS	VS512MB667D2	•	•	•
1GB	CORSAIR	64M8CFEG	N/A	N/A	DS	VS1GB667D2	•	•	•
512MB	crucial	Heat-Sink Package	3	N/A	SS	BL6464AA663.8FD	•	•	•
1GB	crucial	Heat-Sink Package	3	N/A	DS	BL12864AA663.16FD	•	•	•
1GB	crucial	Heat-Sink Package	3	N/A	DS	BL12864AL664.16FD	•	•	
512MB	ELPIDA	E5108AE-6E-E	5	ELPIDA	SS	EBE51UD8AEFA-6E-E	•	•	•
1GB	Hynix	HY5PS12821CFP-Y5	5	Hynix	DS	HYMP512U64CP8-Y5	•	•	•
512MB	Kingmax	KKEA88B4LAUG-29DX	5	KINGMAX	SS	KLCC28F-A8KB5	•	•	•
1GB	Kingmax	KKEA88B4LAUG-29DX	5	KINGMAX	DS	KLCD48F-A8KB5			•
512MB	KINGSTON	D6408TEBGGL3U	5	KINGSTON	SS	KVR667D2N5/512	•	•	•
1GB	KINGSTON	E5108AGBG-6E-E	N/A	KINGSTON	DS	KVR667D2N5/1G	•	•	•
2GB	KINGSTON	E1108AB-6E-E	N/A	ELPIDA	DS	KVR667D2N5/2G	•		•
512MB	NANYA	NT5TU64M8BE-3C	5	NANYA	SS	NT512T64U88B0BY-3C	•	•	•
2GB	NANYA	NT5TU128M8BJ-3C	5	NANYA	DS	NT2GT64U8HB0JY-3C	•	•	•
1GB	PSC	A3R12E3JFF719A9T02	5	PSC	DS	AL7E8E63J-6E1	•	•	•
2GB	Qimonda	HYB18T1GB00C2F-3S	5	QIMONDA	DS	HYS64T256020EU-3S-C2	•	•	•
512MB	SAMSUNG	K4T51083QE	5	SAMSUNG	SS	M378T6553EZS-CE6	•	•	•
1GB	SAMSUNG	K4T51083QE	5	SAMSUNG	DS	M378T2953EZ3-CE6	•	•	•
4GB	SAMSUNG	K4T2G084QA-HCE6	5	SAMSUNG	DS	M378T5263AZ3-CE6	•	•	
512MB	Super Talent	Heat-Sink Package	5	N/A	SS	T6UA512C5	•	•	•
1GB	Super Talent	Heat-Sink Package	5	N/A	DS	T6UB1GC5	•	•	•
512MB	TwinMOS	TMM6208G8M30C	5	TwinMOS	SS	8D-23JK5M2ETP			•
512MB	Aeneon	AET93R300B	5	AENEON	SS	AET660UD00-30DB97X	•	•	•
1GB	Aeneon	AET93R30DB	5	AENEON	DS	AET760UD00-30B97X	•	•	•
2GB	Aeneon	AET03F30DB	5	AENEON	DS	AET860UD00-30DB08X	•	•	•
2GB	Aeneon	AET02R30DC	5	AENEON	DS	AET860UD00-30D	•	•	•
512MB	Asint	DDRII6408-6E	N/A	Asint	SS	SLX264M8-J6E	•	•	•
1GB	Asint	DDRII1208-6E	N/A	Asint	SS	SLY2128M8-J6E	•	•	•
512MB	CENTURY	HY5PS12821CFP-Y5	5	Hynix	SS	26V2H8	•		•
1GB	CENTURY	HY5PS12821CFP-Y5	5	Hynix	DS	26VOH8	•		•
1GB	Kingbox	EPD264082200E-4	N/A	Kingbox	DS	N/A			•

M3A78 PRO Motherboard Qualified Vendors Lists (QVL) DDR2-667 MHz capability for AM2+ CPU (continued)

Size	Vendor	Chip No.	CL	Chip Brand	SS/ DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
2GB	Kingbox	D9HNL	N/A	MICRON	DS	N/A	•	•	
512MB	MDT	18D51280D-30648	4	MDT	SS	M512-667-8	•	•	•
1GB	MDT	1851200D-30646D	4	MDT	DS	M924-667-16A	•	•	•
512MB	Patriot	PM64M8D2BU-3KC	N/A	N/A	SS	PSD251266781	•	•	•
1GB	Patriot	PM64M8D2BU-3PAC	5	Patriot	DS	PSD21G6672	•	•	•
1GB	UMAX	U2S12D30TP-6E	N/A	UMAX	DS	D46701GP3-63BJU	•	•	•
2GB	UMAX	U2S24D30TP-6E	N/A	UMAX	DS	D46702GP0-73BCU	•	•	•

M3A78 PRO Motherboard Qualified Vendors Lists (QVL) DDR2-800 MHz capability for AM2 CPU

Size	Vendor	Chip No.	CL	Chip Brand	SS/ DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
512MB	KINGSTON	K4T51083QC	5	SEC	SS	KVR800D2N5/512	•	•	•
1GB	KINGSTON	Heat-Sink Package	4-4-4-12	N/A	SS	KHX6400D2LLK2/1GN	•	•	
1GB	KINGSTON	V59C1512804QBF25	N/A	N/A	DS	KVR800D2N5/1G	•	•	
1GB	KINGSTON	Heat-Sink Package	N/A	N/A	SS	KHX6400D2ULK2/1G	•	•	
2GB	Qimonda	HYB18T1G800C2F-25F	5	QIMONDA	DS	HYS64T256020EU-25F-C2	•		
512MB	Hynix	HY5PS12821CFP-S5	5-5-5	Hynix	SS	HYMP564U64CP8-S5	•	•	•
1GB	Hynix	HY5PS12821CFP-S5	5-5-5	Hynix	DS	HYMP512U64CP8-S5	•	•	
512MB	MICRON	D9GKX	N/A	N/A	SS	MT8HTF6464AY-80ED4	•	•	•
1GB	MICRON	D9GKX	N/A	N/A	DS	MT16HTF12864AY-80ED4	•	•	
1GB	CORSAIR	Heat-Sink Package	4	N/A	DS	CM2X1024-6400C4	•	•	
1GB	ELPIDA	E1108AB-8E-E(ECC)	5	ELPIDA	SS	EBE10EE8ABFA-8E-E	•	•	
2GB	ELPIDA	E1108AB-8E-E(ECC)	5	ELPIDA	DS	EBE21EE8ABFA-8E-E	•		
1GB	Crucial	Heat-Sink Package	4	N/A	DS	BL12864AA804.16FD	•	•	
1GB	Crucial	Heat-Sink Package	4	N/A	DS	BL12864AL804.16FD3	•	•	
1GB	Crucial	Heat-Sink Package	4	N/A	DS	BL12864AA804.16FD3	•	•	
512MB	Apacer	AM4B5708JQJS8E	N/A	APACER	SS	78.91G9I.9K5	•	•	•
1GB	Apacer	AM4B5808CQJS8E	N/A	APACER	SS	78.01GA0.9K5	•	•	
2GB	Apacer	AM4B5808CQJS8E	5	APACER	DS	78.A1GA0.9K4	•		
512MB	A-DATA	AD29608A8A-25EG	N/A	N/A	SS	M2OAD6G3H3160G1E53	•	•	•
1GB	A-DATA	AD26908A8A-25EG	N/A	N/A	DS	M2OAD6G3I4170I1E58	•	•	
512MB	KINGMAX	KKA8FEIBF-HJK-25A	N/A	KINGMAX	SS	KLDC28F-A8KI5	•	•	
1GB	KINGMAX	KKA8FEIBF-HJK-25A	N/A	KINGMAX	DS	KLDD48F-ABKI5	•	•	
512MB	Super Talent	Heat-Sink Package	N/A	N/A	SS	T800UA12C4	•	•	
512MB	NANYA	NT5TU64M8BE-25C	5	NANYA	SS	NT512T64U880BY-25C	•	•	

M3A78 PRO Motherboard Qualified Vendors Lists (QVL) DDR2-800 MHz capability for AM2 CPU (continued)

Size	Vendor	Chip No.	CL	Chip Brand	SS/ DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
1GB	NANYA	NT5TU64M8BE-25C	5	NANYA	DS	NT1GT64U8HB0BY-25C	•	•	
1GB	NANYA	NT5TU64M8CE-25D	N/A	NANYA	DS	NT1GT64U8HCOBY-25D	•	•	
2GB	NANYA	NT5TU128M8CE-AC	5	NANYA	DS	NT2GT64U8HC0BY-AC	•		•
512MB	PSC	A3R12E3HEF641B9A05	5	PSC	SS	AL6E8E63B8E1K	•	•	•
1GB	PSC	A3R12E3HEF641B9A05	5	PSC	DS	AL7E8E63B-8E1K	•	•	
256MB	TwinMOS	E2508AB-GE-E	5	ELPIDA	SS	8G-24IK2-EBT		•	•

M3A78 PRO Motherboard Qualified Vendors Lists (QVL) DDR2-667 MHz capability for AM2 CPU

Size	Vendor	Chip No.	CL	Chip Brand	SS/ DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
256MB	KINGSTON	HYB18T256800AF3S	5	N/A	SS	KVR667D2N5/256		•	
256MB	KINGSTON	6SBI2D9DCG	5	MICRON	SS	KVR667D2N5/256			•
1GB	KINGSTON	E5108AGBG-6E-E	N/A	KINGSTON	DS	KVR667D2N5/1G	•	•	
2GB	KINGSTON	E1108AB-6E-E	N/A	ELPIDA	DS	KVR667D2N5/2G	•		
2GB	Qimonda	HYB18T1GB00C2F-3S	5	QIMONDA	DS	HYS64T256020EU-3S-C2	•		
512MB	SAMSUNG	K4T51163QE-ZCE6	5	SAMSUNG	DS	M378T3354EZ3-CE6		•	
256MB	SAMSUNG	K4T51083QE	5	SAMSUNG	SS	M378T6553EZS-CE6	•	•	•
1GB	SAMSUNG	K4T51083QE	5	SAMSUNG	DS	M378T2953EZ3-CE6	•	•	
256MB	Hynix	HY5PS121621CFP-Y5	5	Hynix	SS	HYMP532U64CP6-Y5		•	•
1GB	Hynix	HY5PS12821CFP-Y5	5	Hynix	DS	HYMP512U64CP8-Y5		•	
256MB	CORSAIR	MIII00605	N/A	N/A	SS	VS256MB667D2			•
512MB	CORSAIR	64M8CFEG	N/A	N/A	SS	VS512MB667D2	•	•	
1GB	CORSAIR	64M8CFEG	N/A	N/A	DS	VS1GB667D2	•	•	
512MB	A-DATA	AD29608A8A-3EG	5	A-DATA	SS	M2OAD5G3H3166I1C52	•		
1GB	A-DATA	AD29608A8A-3EG	5	A-DATA	DS	M2OAD5G3I4176I1C52	•	•	
2GB	A-DATA	NT5TU128M8BJ-3C	N/A	N/A	DS	M2ONY5H3J4170I1C5Z	•	•	
512MB	crucial	Heat-Sink Package	3	N/A	SS	BL6464AA663.8FD	•		•
1GB	crucial	Heat-Sink Package	3	N/A	DS	BL12864AA663.16FD	•	•	
1GB	crucial	Heat-Sink Package	3	N/A	DS	BL12864AL664.16FD	•	•	
1GB	Apacer	AM4B5808CQJS7E	N/A	APACER	SS	78.01G9O.9K5	•	•	
2GB	Apacer	AM4B5808CQJS7E	N/A	APACER	DS	78.A1G9O.9K4	•	•	•
256MB	Kingmax	N2TU51216AG-3C	5	NANYA	SS	KLCB68F-36KH5			•
512MB	Kingmax	KKEA88B4LAUG-29DX	5	KINGMAX	SS	KLCC28F-A8KB5	•	•	•
1GB	Kingmax	KKEA88B4LAUG-29DX	5	KINGMAX	DS	KLCD48F-A8KB5	•	•	
512MB	Super Talent	Heat-Sink Package	5	N/A	SS	T6UA512C5	•	•	•

M3A78 PRO Motherboard Qualified Vendors Lists (QVL)
DDR2-667 MHz capability for AM2 CPU (continued)

Size	Vendor	Chip No.	CL	Chip Brand	SS/ DS	Part No.	DIMM socket support (Optional)		
							A*	B*	C*
1GB	Super Talent	Heat-Sink Package	5	N/A	DS	T6UB1GC5	•	•	
2GB	NANYA	NT5TU128M8BJ-3C	5	NANYA	DS	NT2GT64U8HB0JY-3C	•		
512MB	NANYA	NT5TU64M8BE-3C	5	NANYA	SS	NT512T64U88B0BY-3C	•	•	
512MB	PSC	A3R12E3GEF637BLC5N	5	PSC	SS	AL6E8E63B-6E1K	•		•
1GB	PSC	A3R12E3GEF637BLC5N	5	PSC	DS	AL7E8E63B-6E1K	•	•	
512MB	TwinMOS	TMM6208G8M30C	5	TwinMOS	SS	8D-23JK5M2ETP	•	•	•

Side(s): SS - Single-sided DS - Double-sided
DIMM support:

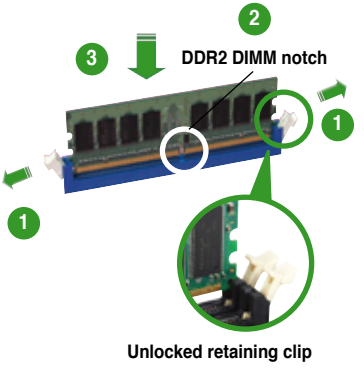
- **A*:** Supports one module inserted into either slot as Single-channel memory configuration.
- **B*:** Supports two modules inserted into either the yellow slots or the black slots as one pair of Dual-channel memory configuration.
- **C*:** Supports four modules inserted into both the yellow slots and the black slots as two pairs of Dual-channel memory configuration.

Visit the ASUS website for the latest DDR2 QVL.

1.7.3 Installing a DIMM

Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.

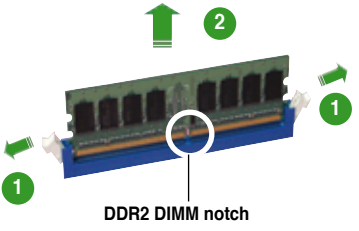


- A DDR2 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.
- The DDR2 DIMM sockets do not support DDR DIMMs. Do not install DDR DIMMs to the DDR2 DIMM sockets.

1.7.4 Removing a DIMM

To remove a DIMM:

1. Simultaneously press the retaining clips outward to unlock the DIMM.



Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2. Remove the DIMM from the socket.

1.8 Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

1.8.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

1.8.2 Configuring an expansion card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.
2. Assign an IRQ to the card. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

Interrupt assignments

IRQ	Priority	Standard function
0	1	System timer
1	2	Keyboard controller
2	–	Re-direct to IRQ#9
3	11	IRQ holder for PCI steering*
4	12	Communications port (COM1)*
5	13	IRQ holder for PCI steering*
6	14	Floppy disk controller
7	15	IRQ holder for PCI steering*
8	3	System CMOS/Real Time Clock
9	4	IRQ holder for PCI steering*
10	5	IRQ holder for PCI steering*
11	6	IRQ holder for PCI steering*
12	7	PS/2 compatible mouse port*
13	8	Numeric data processor
14	9	IRQ holder for PCI steering*
15	10	IRQ holder for PCI steering*

* These IRQs are usually available for ISA or PCI devices.

IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
PCI 1	shared	–	–	–	–	–	–	–
PCI 2	–	shared	–	–	–	–	–	–
LAN	–	shared	–	–	–	–	–	–
PCIe x16_1	shared	–	–	–	–	–	–	–
PCIe x1_1	–	shared	–	–	–	–	–	–
PCIe x1_2	shared	–	–	–	–	–	–	–
PCI_1	–	–	shared	–	–	–	–	–
PCI_2	shared	–	–	–	–	–	–	–
PCI_3								
USB controller 1	–	–	–	–	–	–	–	shared
USB controller 2	–	–	–	shared	–	–	–	–
USB controller 3	–	–	shared	–	–	–	–	–
USB controller 4	shared	–	–	–	–	–	–	–
USB controller 5	shared	–	–	–	–	–	–	–
USB controller 6	–	–	–	–	–	shared	–	–
USB 2.0 controller 1	–	–	–	–	–	–	shared	–
USB 2.0 controller 2	–	shared		–	–	–	–	–
SATA controller	–	–	shared	–	–	–	–	–
Azalia	–	–	–	–	–	shared	–	–

1.8.3 PCI slots

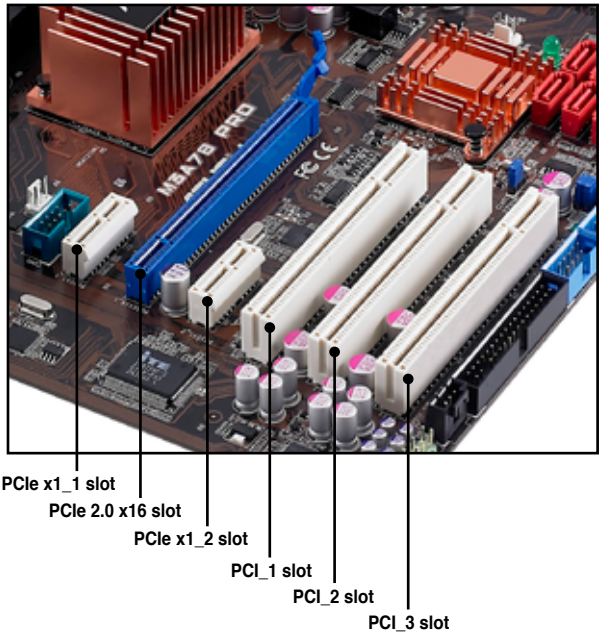
The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. Refer to the figure below for the location of the slots.

1.8.4 PCI Express x1 slots

This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with PCI Express specifications. Refer to the figure below for the location of the slot.

1.8.5 PCI Express 2.0 x16 slot

This motherboard supports PCI Express x16 graphic cards that comply with PCI Express specifications. Refer to the figure below for the location of the slot.



- Currently, only Windows® Vista operation system supports Hybird CrossFireX™ mode.
- Currently, only AMD® HD3470, HD3450, HD2400XT and HD2400Pro graphics cards support the Hybrid CrossFireX™ function.
- Visit www.amd.com for more information about Hybrid CrossFireX™ support.

1.9 Jumpers

1. Clear RTC RAM (CLRTC)

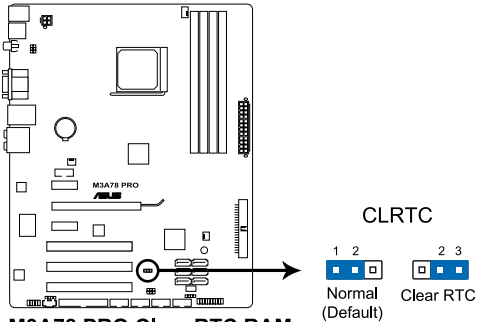
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
3. Plug the power cord and turn ON the computer.
4. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.



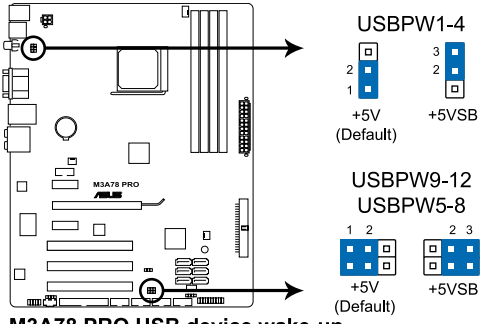
M3A78 PRO Clear RTC RAM

- You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.
- Due to the chipset limitation, AC power off is required prior using C.P.R. function. You must turn off and on the power supply or unplug and plug the power cord before reboot the system.

2. USB device wake-up (3-pin USBPW1-4, USBPW5-8, USBPW9-12)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes.

The USBPW1-4 jumpers are for the rear USB ports. The USBPW5-8 and USBPW9-12 jumpers are for the internal USB connectors that you can connect to additional USB ports.

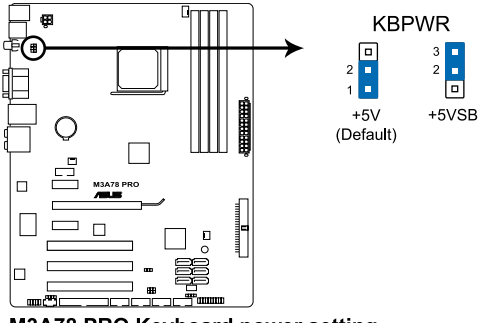


M3A78 PRO USB device wake-up

- The USB device wake-up feature requires a power supply that can provide 500mA on the +5VSB lead for each USB port; otherwise, the system will not power up.
- The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

3. Keyboard power (3-pin KBPWR)

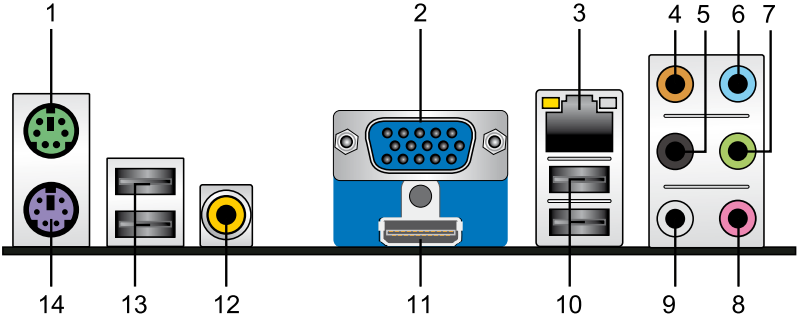
This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) to wake up the computer when you press a key on the keyboard (the default is the Space Bar). This feature requires an ATX power supply that can supply at least 500 mA on the +5VSB lead, and a corresponding setting in the BIOS.



M3A78 PRO Keyboard power setting

1.10 Connectors

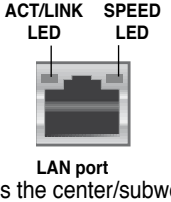
1.10.1 Rear panel connectors



1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.
2. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.
3. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

Activity/Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection



4. **Center/Subwoofer port (orange).** This port connects the center/subwoofer speakers.
5. **Rear Speaker Out port (black).** This port connects the rear speakers in a 4-channel, 6-channel, or 8-channel audio configuration.
6. **Line In port (light blue).** This port connects the tape, DVD, DVD player, or other audio sources.
7. **Line Out port (lime).** This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.
8. **Microphone port (pink).** This port connects a microphone.
9. **Side Speaker Out port (gray).** This port connects the side speakers in an 8-channel audio configuration.

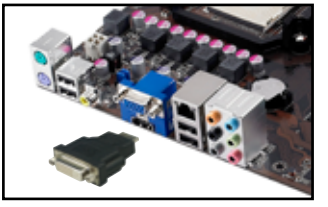
Refer to the audio configuration table on the next page for the function of the audio ports in 2, 4, 6, or 8-channel configuration.

Audio 2, 4, 6, or 8-channel configuration

Port	Headset 2-channel	4-channel	6-channel	8-channel
Light Blue	Line In	Line In	Line In	Line In
Lime	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In	Mic In
Orange	–	–	Center/Subwoofer	Center/Subwoofer
Black	–	Rear Speaker Out	Rear Speaker Ou	Rear Speaker Out
Gray	–	–	–	Side Speaker Out

10. **USB 2.0 ports 1 and 2**. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
11. **HDMI Out port.** This port is for a high-definition multimedia interface (HDMI) connector.

- This motherboard comes with dual-VGA outputs that features different displays on 2 monitors at the same time if you connect 2 monitors to both the onboard VGA and HDMI ports.
- With the bundled HDMI-to-DVI conversion adapter, this motherboard can also support DVI output.



- **Playback of HD DVD and Blu-Ray Discs**
  The speed and bandwidth of the CPU/Memory, DVD player, and drivers will affect the playback quality. Following is a configuration example for your reference. Using the CPU/Memory of higher speed and bandwidth with the higher-version DVD player and drivers will upgrade the playback quality.

  CPU: AMD Athlon64 ADH3200IAA4DE/512KB (single core)
  DIMM: Kingston DDR2-800 1G x1 (BIOS share memory: 256MB)
  HDD: Seagate ST3160023A (ATA100)
  ODD: Sony BWU100A

- To play HD DVD or Blu-Ray Disc, make sure to use an HDCP compliant monitor.

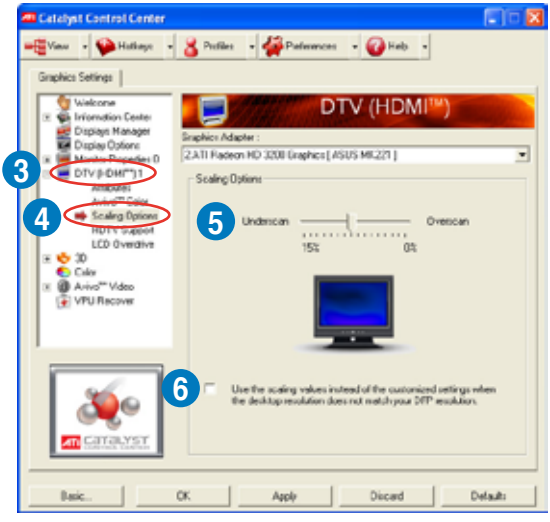
12. **Coaxial S/PDIF Out port.** This port connects an external audio output device via a coaxial S/PDIF cable.
13. **USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
14. **PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.

Troubleshooting on HDTV overscaling or underscaling:

If your desktop is extending beyond the viewable display area or the desktop or image is not filling the entire display area while using the onboard HDMI out port and the HDMI cable, you can resize the desktop appearing on your HDTV screen.

To resize your HDTV desktop:

1. Install **AMD Chipset Driver** from the motherboard support DVD. See section **3.3.2 Drivers menu** for details.
2. Right-click the desktop and select **ATI CATALYST(R) Control Center**.
3. From the **Graphics Settings** tree, expand **DTV (HDMI™) 1**.
4. Click **Scaling Options**.
5. Move the **Underscan/Overscan** slider to adjust the overall size of the display on the HDMI™ DTV.
   Using this slider increases or decreases any black borders that may be visible around the outside of the display.



6. To ensure that forcing a custom display mode through the ATI Displays Manager does not create conflicting resolutions, select the **Use the scaling values instead of the customized settings when the desktop resolution does not match your DFP resolution** check box.

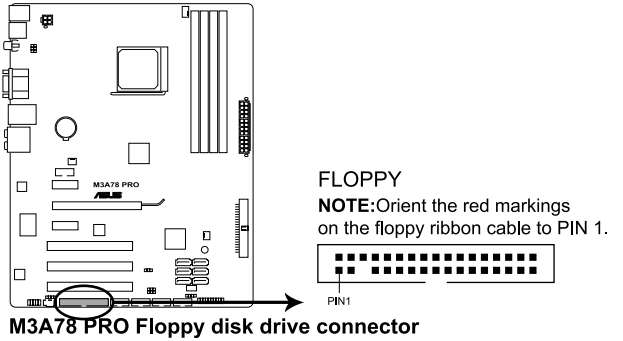
The **Scaling Options** function of the **DTV (HDMI™) 1** item in the ATI CATALYST Control Center is adjustable only when you are using an HDTV compliance resolution such as 480i, 720i, or 1080i.

1.10.2 Internal connectors

1. Floppy disk drive connector (34-1 pin FLOPPY)

This connector is for the provided floppy disk drive (FDD) signal cable. Insert one end of the cable to this connector, then connect the other end to the signal connector at the back of the floppy disk drive.

Pin 5 on the connector is removed to prevent incorrect cable connection when using an FDD cable with a covered Pin 5.

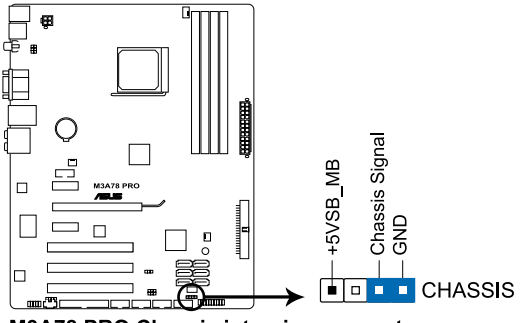


M3A78 PRO Floppy disk drive connector

2. Chassis intrusion connector (4-1 pin CHASSIS)

This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

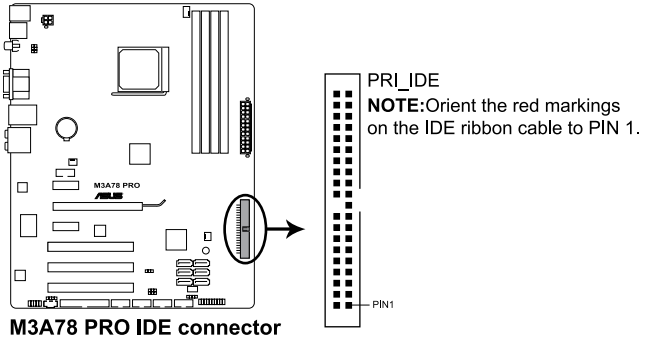
By default, the pins labeled “Chassis Signal” and “Ground” are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.



M3A78 PRO Chassis intrusion connector

3. IDE connectors (40-1 pin PRI_IDE)

The onboard IDE connector is for an Ultra DMA 133/100/66 signal cable. There are three connectors on each Ultra DMA 133/100/66 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your device(s).



M3A78 PRO IDE connector

	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master	Master	Black or gray
	Slave	Slave	

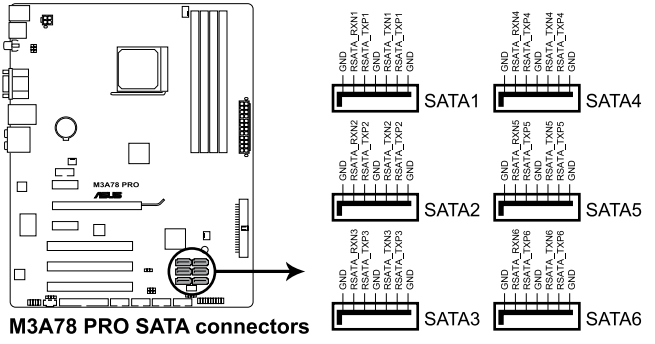
- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.
- Use the 80-conductor IDE cable for Ultra DMA 133/100/66 IDE devices.

If any device jumper is set as "Cable-Select," make sure all other device jumpers have the same setting.

4. Serial ATA connectors (7-pin SATA1-6)

These connectors are for the Serial ATA signal cables for Serial ATA 3Gb/s hard disk and optical disk drives. The Serial ATA 3Gb/s is backward compatible with Serial ATA 1.5Gb/s specification. The data transfer rate of the Serial ATA 3Gb/s is faster than the standard parallel ATA with 133 MB/s (Ultra DMA133).

If you install Serial ATA hard disk drives, you can create a RAID 0, RAID 1, and RAID 10 configuration through the onboard controller.



M3A78 PRO SATA connectors

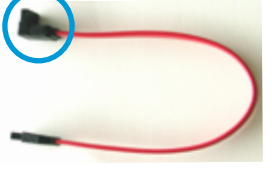
Important note on Serial ATA

Install the Windows® XP Service Pack 1 before using Serial ATA.

- For detailed instructions on how to configure RAID 0, RAID 1 and RAID 10, refer to the RAID manual in the support DVD.
- If you intend to create a Serial ATA RAID set using these connectors, set the **OnChip SATA Type** item in the BIOS to [RAID]. See page 2-16 for details.

Connect the right-angle side of SATA signal cable to SATA device. Or you may connect the right-angle side of SATA cable to the onboard SATA port to avoid mechanical conflict with huge graphics cards.

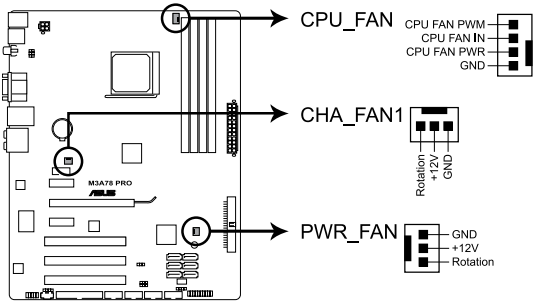
right angle side



5. CPU, Chassis and Power Fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN1, 3-pin PWR_FAN)

The fan connectors support cooling fans of 350mA~740mA (8.88W max.) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.

Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors.

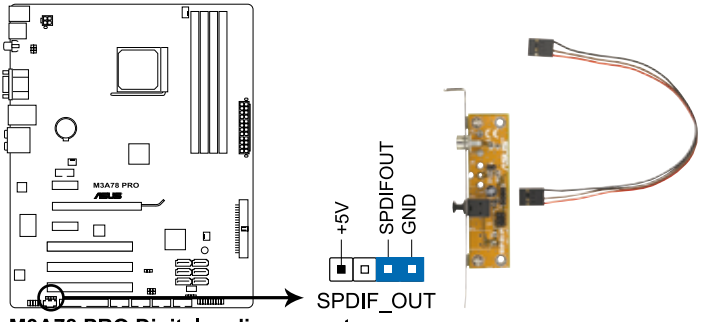


M3A78 PRO FAN connectors

Only the CPU_FAN and CHA_FAN1 connectors support the ASUS Q FAN 2 feature.

6. Digital audio connector (4-1 pin SPDIF_OUT)

This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). Connect the S/PDIF module cable to this connector, then install the module to a slot opening at the back of the system chassis.

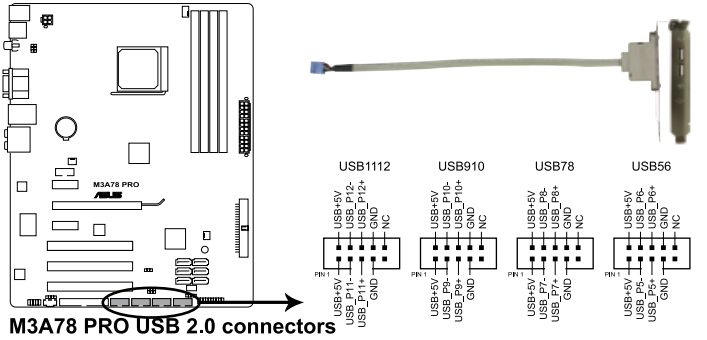


M3A78 PRO Digital audio connector

The S/PDIF module is purchased separately.

7. USB connectors (10-1 pin USB56, USB78, USB910, USB1112)

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.



M3A78 PRO USB 2.0 connectors

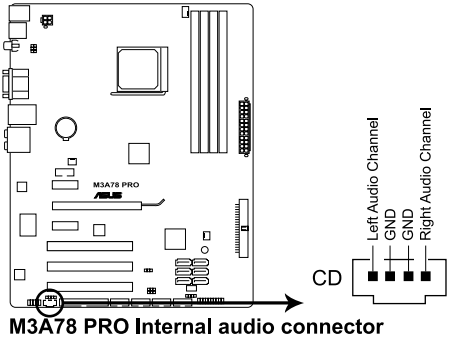
You can connect the front panel USB cable to the ASUS Q-Connector (USB, blue) first, and then install the Q-Connector (USB) to the USB connector onboard if your chassis supports front panel USB ports.

Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

The USB 2.0 module is purchased separately.

8. Optical drive audio in connector (4-pin DVD)

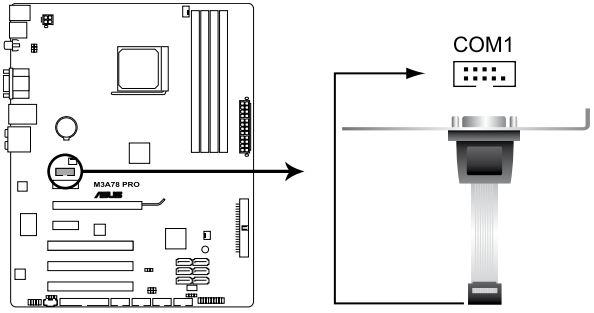
These connectors allow you to receive stereo audio input from sound sources such as a DVD-ROM, TV tuner, or MPEG card.



M3A78 PRO Internal audio connector

9. Serial port connectors (10-1 pin COM1)

The connector is for a serial (COM) port. Connect the serial port module cable to the connector, then install the module to a slot opening at the back of the system chassis.

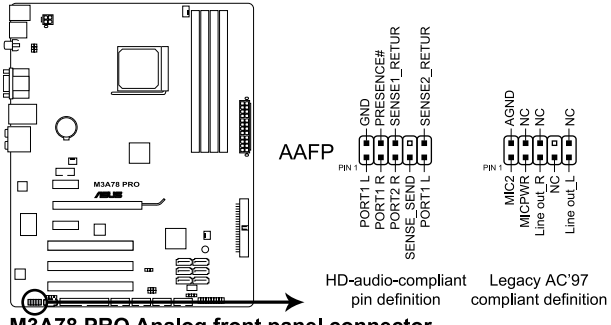


M3A78 PRO Serial port (COM1) connector

The serial port bracket (COM1) is purchased separately.

10. Front panel audio connector (10-1 pin AAFP)

This connector is for a chassis-mounted front panel audio I/O module that supports either High Definition Audio or AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.

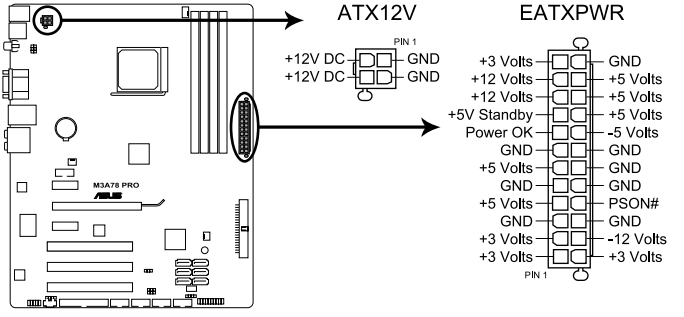


M3A78 PRO Analog front panel connector

- We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard high-definition audio capability.
- If you want to connect a high-definition front panel audio module to this connector, make sure that the **Front Panel Support Type** item in the BIOS is set to [HD Audio]; if you want to connect an AC`97 front panel audio module to this connector, set the item to [AC97]. See page 2-27 for details.

11. ATX power connectors (24-pin ATX-PWRGD, 4-pin ATX12V)

These connectors are for an ATX power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

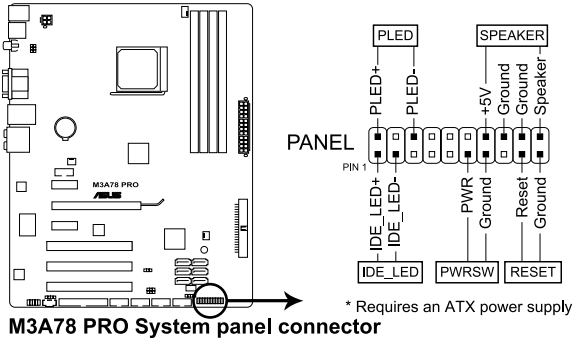


M3A78 PRO ATX power connectors

- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 400 W.
- Do not forget to connect the 4-pin EATX12V power plug; otherwise, the system will not boot.
- Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
- If you are uncertain about the minimum power supply requirement for your system, refer to the **Recommended Power Supply Wattage Calculator** at http://support.asus.com/PowerSupplyCalculator/PSCalculator.aspx?SLanguage=en-us for details.

12. System panel connector (20-8 pin PANEL)

This connector supports several chassis-mounted functions.



M3A78 PRO System panel connector

- **System power LED**

  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED**

  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

- **System warning speaker**

  This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **Power/Soft-off button**

  This 2-pin connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **Reset button**

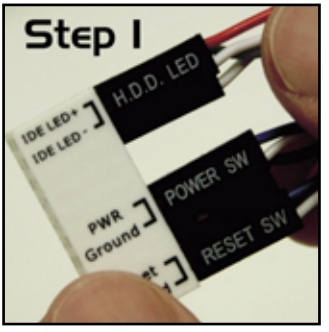
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

13. ASUS Q-Connector (system panel)

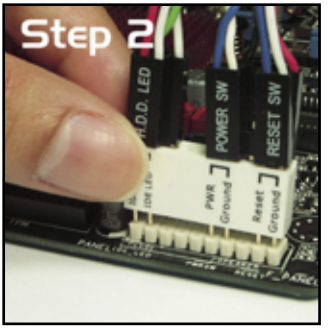
You can use the ASUS Q-Connector to connect/disconnect chassis front panel cables in a few steps. Refer to the instructions below to install the ASUS Q-Connector.

1. Connect the front panel cables to the ASUS Q-Connector.

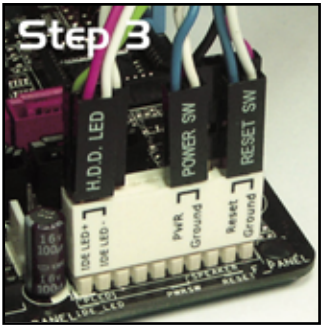
   Refer to the labels on the Q-Connector to know the detailed pin definitions, then match them to the respective front panel cable labels.



2. Install the ASUS Q-Connector to the system panel connector, making sure the orientation matches the labels on the motherboard.



3. The front panel functions are now enabled. The figure shows the Q-Connector properly installed on the motherboard.



This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

2 BIOS setup

2.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup.

1. **ASUS EZ Flash 2** (Updates the BIOS using a floppy disk, USB Flash, or the motherboard support DVD during POST.)
2. **ASUS AFUDOS** (Updates the BIOS in DOS mode using a bootable floppy disk.)
3. **ASUS Update** (Updates the BIOS in Windows® environment.)

Refer to the corresponding sections for details on these utilities.

Save a copy of the original motherboard BIOS file to a bootable floppy disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update or AFUDOS utilities.

2.1.1 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.

   DOS environment

   a. Insert a 1.44MB floppy disk into the drive.
   b. At the DOS prompt, type **format A:/S** then press <Enter>.

   Windows® XP environment

   a. Insert a 1.44 MB floppy disk to the floppy disk drive.
   b. Click **Start** from the Windows® desktop, then select **My Computer**.
   c. Select the 3 1/2 Floppy Drive icon.
   d. Click **File** from the menu, then select **Format.** A Format 3 1/2 Floppy Disk window appears.
   e. Windows® XP users: Select **Create an MS-DOS startup disk** from the format options field, then click **Start**.

   Windows® Vista environment

   a. Insert a formatted, high density 1.44 MB floppy disk to the floppy disk drive.
   b. Click from the Windows® desktop, then select **Computer**.
   c. Right-click **Floppy Disk Drive** then click **Format** to display the **Format 3 1/2 Floppy** dialog box .
   d. Select the **Create an MS-DOS startup disk** check box.
   e. Click **Start**.

2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

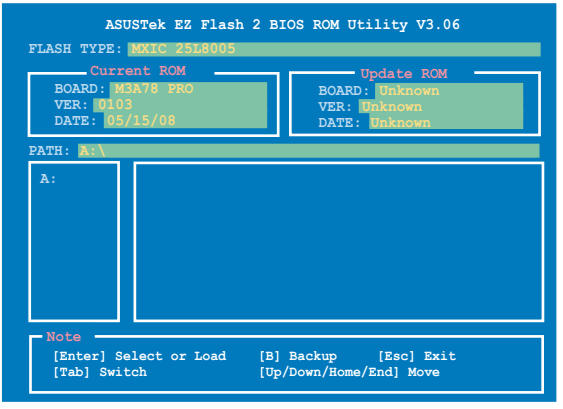
2.1.2 ASUS EZ Flash 2 utility

The ASUS EZ Flash 2 feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk and using a DOS-based utility. The EZ Flash 2 utility is built-in the BIOS chip so it is accessible by pressing <Alt> + <F2> during the Power-On Self-Test (POST).

To update the BIOS using EZ Flash 2:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for the motherboard.
2. Save the BIOS file to a floppy disk or a USB flash disk, then restart the system.
3. You can launch the EZ Flash 2 by two methods.
   (1) Insert the floppy disk / USB flash disk that contains the BIOS file to the floppy disk drive or the USB port.

   Press <Alt> + <F2> during POST to display the following.



   (2) Enter BIOS setup program. Go to the **Tools** menu to select **EZ Flash 2** and press <Enter> to enable it.

   You can switch between drives by pressing <Tab> before the correct file is found. Then press <Enter>.
4. When the correct BIOS file is found, EZ Flash 2 performs the BIOS update process and automatically reboots the system when done.

- This function can support devices such as USB flash disks or floppy disks with **FAT 32/16** format only.
- Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

2.1.3 AFUDOS utility

The AFUDOS utility allows you to update the BIOS file in DOS environment using a bootable floppy disk with the updated BIOS file. This utility also allows you to copy the current BIOS file that you can use as backup when the BIOS fails or gets corrupted during the updating process.

Copying the current BIOS

To copy the current BIOS file using the AFUDOS utility:

- Make sure that the floppy disk is not write-protected and has at least 1024KB free space to save the file.
- The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be same as shown.

1. Copy the AFUDOS utility (afudos.exe) from the motherboard support DVD to the bootable floppy disk you created earlier.
2. Boot the system in DOS mode, then at the prompt type:

   afudos /o[filename]

   where the [filename] is any user-assigned filename not more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.

3. Press <Enter>. The utility copies the current BIOS file to the floppy disk.

```
A:\>afudos /oOLDBIOS1.rom
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
    Reading flash ..... done
    Write to file..... ok
A:\>
```

The utility returns to the DOS prompt after copying the current BIOS file.

Updating the BIOS file

To update the BIOS file using the AFUDOS utility:

1. Visit the ASUS website (www.asus.com) and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable floppy disk.

Write the BIOS filename on a piece of paper. You need to type the exact BIOS filename at the DOS prompt.

2. Copy the AFUDOS utility (afudos.exe) from the motherboard support DVD to the bootable floppy disk you created earlier.
3. Boot the system in DOS mode, then at the prompt type:

   afudos /i[filename]

   where [filename] is the latest or the original BIOS file on the bootable floppy disk.

```
A:\>afudos /iM3A78PRO.ROM
```

4. The utility verifies the file and starts updating the BIOS.

```
A:\>afudos /iM3A78PRO.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ....... done
    Reading flash ...... done

    Advance Check ......
    Erasing flash ...... done
    Writing flash ...... 0x0008CC00 (9%)
```

Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.

```
A:\>afudos /iM3A78PRO.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ....... done
    Reading flash ...... done

    Advance Check ......
    Erasing flash ...... done
    Writing flash ...... done
    Verifying flash .... done

    Please restart your computer

A:\>
```

2.1.4 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- Save the current BIOS file
- Download the latest BIOS file from the Internet
- Update the BIOS from an updated BIOS file
- Update the BIOS directly from the Internet, and
- View the BIOS version information.

This utility is available in the support DVD that comes with the motherboard package.

ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

Installing ASUS Update

To install ASUS Update:

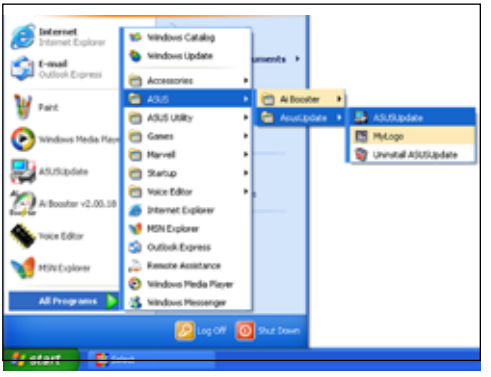
1. Place the support DVD in the optical drive. The **Drivers** menu appears.
2. Click the **Utilities** tab, then click **Install ASUS Update**. See page 3-4 for the Utilities screen menu.
3. The ASUS Update utility is copied to your system.

Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

1. Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.



Select the Update Method
1. Update/Save BIOS from/to a file.
2. Update BIOS from the Internet - Update system BIOS using a specified BIOS image file on ASUS Web Site.
3. Download BIOS from the Internet - Download a specified BIOS image file via Internet for later usage.
4. Check BIOS Information
Update BIOS from the Internet
Save current BIOS to a file
Update BIOS from a file
Update BIOS from the Internet
Download BIOS from the Internet
Check BIOS Information
Options

2. Select **Update BIOS from the Internet** option from the drop-down menu, then click **Next**.

Select the Update Server
Before Continue, please make sure that your system is connected to the Internet. You can then choose a web site by yourself or click AutoSelect button, ASUS Update will choose the best site based on network traffic automatically for you.
Passive
Proxy Setting
Auto Select
ftp.asus.com.tw
Back
Cancel
Next

3. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select**. Click **Next**.

4. From the FTP site, select the BIOS version that you wish to download. Click **Next**.
5. Follow the screen instructions to complete the update process.

Select the BIOS Version
Please select the version you want
Please choose BIOS file from combo box.
What's New
Please choose

The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.

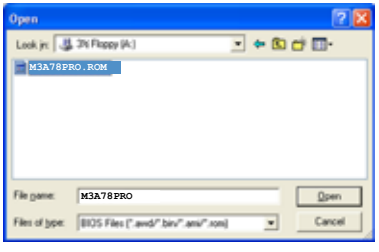
Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

1. Launch the ASUS Update utility from the Windows® desktop by clicking Start **> Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.
2. Select **Update BIOS from a file** option from the drop-down menu, then click **Next**.

Select the Update Method
1. Update/Save BIOS from/to a file.
2. Update BIOS from the Internet - Update system BIOS using a specified BIOS image file on ASUS Web Site.
3. Download BIOS from the Internet - Download a specified BIOS image file via Internet for later usage.
4. Check BIOS Information
Update BIOS from a file
Save current BIOS to a file
Update BIOS from the Internet
Download BIOS from the Internet
Check BIOS Information
Options

3. Locate the BIOS file from the **Open** window, then click **Open**.
4. Follow the screen instructions to complete the update process.



2.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section **2.1 Managing and updating your BIOS**.

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to "Run Setup." This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the LPC chip.

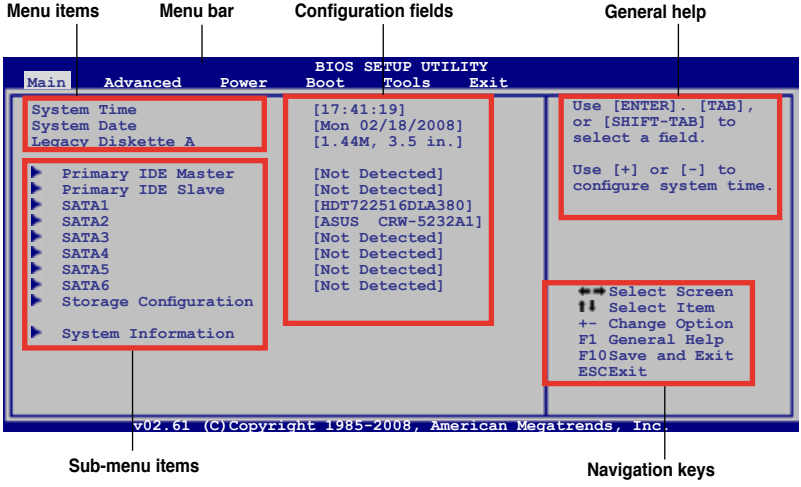
The firmware chip on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Del> during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl+Alt+Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the Load Default Settings item under the Exit Menu. See section **2.8 Exit menu**.
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.

2.2.1 BIOS menu screen



2.2.2 Menu bar

The menu bar on top of the screen has the following main items:

Main	For changing the basic system configuration
Advanced	For changing the advanced system settings
Power	For changing the advanced power management (APM) configuration
Boot	For changing the system boot configuration
Tools	For configuring options for special functions
Exit	For selecting the exit options and loading default settings

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

- The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the ASUS website (www.asus.com) to download the latest BIOS information.

2.2.3 Navigation keys

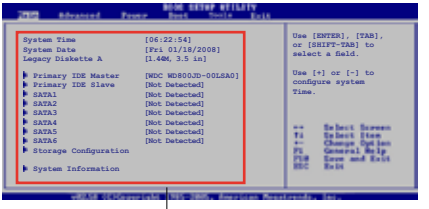
At the bottom right corner of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings.

Some of the navigation keys differ from one screen to another.

2.2.4 Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting Main shows the Main menu items.

The other items (Advanced, Power, Boot, and Exit) on the menu bar have their respective menu items.


System Time [06:22:54]
System Date [Fri 01/18/2008]
Legacy Diskette A [1.44M, 3.5 in]
Primary IDE Master [WDC WD800JD-00LSA0]
Primary IDE Slave [Not Detected]
SATA1 [Not Detected]
SATA2 [Not Detected]
SATA3 [Not Detected]
SATA4 [Not Detected]
SATA5 [Not Detected]
SATA6 [Not Detected]
Storage Configuration
System Information
Use [ENTER], [TAB], or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Time.

Main menu items

2.2.5 Sub-menu items

A solid triangle before each item on any menu screen means that the iteam has a sub-menu. To display the sub-menu, select the item and press <Enter>.

2.2.6 Configuration fields

These fields show the values for the menu items. If an item is user- configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

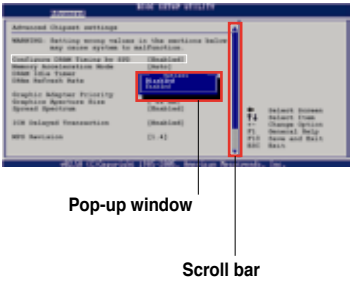
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to **2.2.7 Pop-up window**.

2.2.7 Pop-up window

Select a menu item then press <Enter> to display a pop-up window with the configuration options for that item.

2.2.8 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> /<Page Down> keys to display the other items on the screen.



Pop-up window

Scroll bar

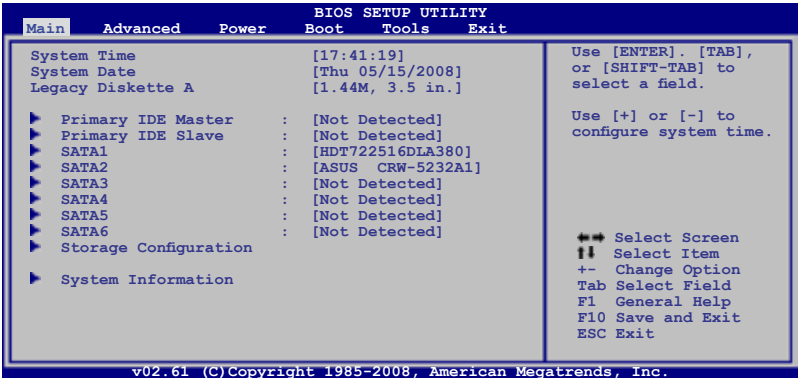
2.2.9 General help

At the top right corner of the menu screen is a brief description of the selected item.

2.3 Main menu

When you enter the BIOS Setup program, the Main menu screen appears, giving you an overview of the basic system information.

Refer to section **2.2.1 BIOS menu** screen for information on the menu screen items and how to navigate through them.


BIOS SETUP UTILITY
Main Advanced Power Boot Tools Exit
System Time [17:41:19]
System Date [Thu 05/15/2008]
Legacy Diskette A [1.44M, 3.5 in.]
Primary IDE Master : [Not Detected]
Primary IDE Slave : [Not Detected]
SATA1 : [HDT722516DLA380]
SATA2 : [ASUS CRW-5232A1]
SATA3 : [Not Detected]
SATA4 : [Not Detected]
SATA5 : [Not Detected]
SATA6 : [Not Detected]
Storage Configuration
System Information
Use [ENTER]. [TAB], or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system time.
Select Screen
Select Item
+- Change Option
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2008, American Megatrends, Inc.

2.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

2.3.2 System Date [Day xx/xx/xxxx]

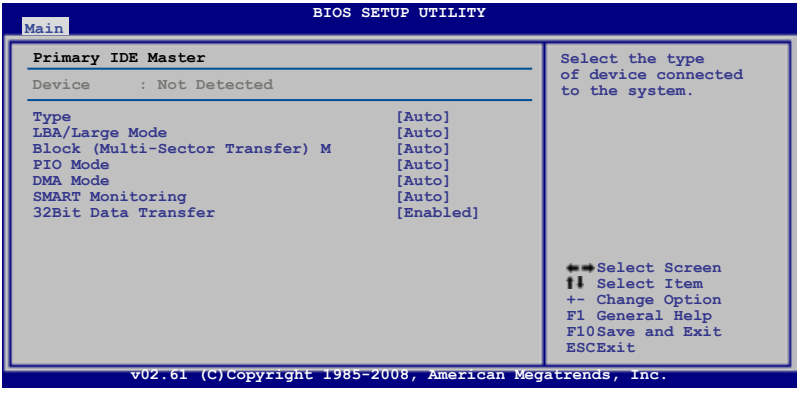
Allows you to set the system date.

2.3.3 Legacy Diskette A [1.44M, 3.5 in.]

Sets the type of floppy drive installed.
Configuration options: [Disabled] [720K , 3.5 in.] [1.44M, 3.5 in.]

2.3.4 Primary IDE Master/Slave

While entering Setup, the BIOS automatically detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press <Enter> to display the IDE device information.



The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

Type [Auto]

Selects the type of IDE drive. Setting to [Auto] allows automatic selection of the appropriate IDE device type. Select [CDROM] if you are specifically configuring a DVD-ROM drive. Select [ARMD] (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive.
Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to [Auto] enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) M [Auto]

Enables or disables data multi-sectors transfers. When set to [Auto], the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to [Disabled], the data transfer from and to the device occurs one sector at a time.
Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode.
Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto] [SWDMA0] [SWDMA1] [SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2] [UDMA3] [UDMA4] [UDMA5] [UDMA6]

SMART Monitoring [Auto]

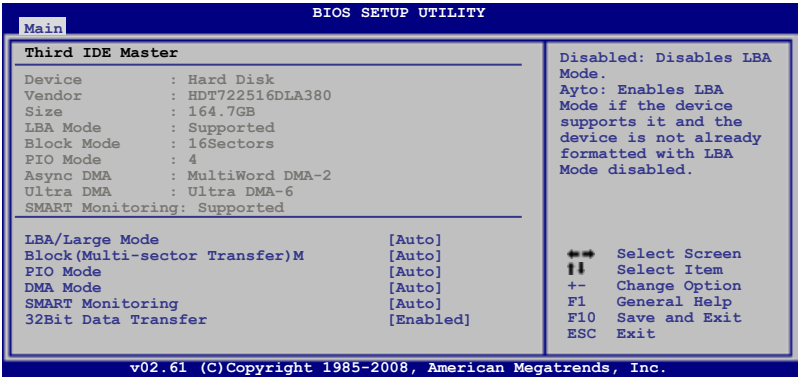
Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

Enables or disables 32-bit data transfer.
Configuration options: [Disabled] [Enabled]

2.3.5 SATA1/2/3/4/5/6

While entering Setup, the BIOS automatically detects the presence of SATA devices. There is a separate sub-menu for each SATA device. Select a device item then press <Enter> to display the SATA device information.


BIOS SETUP UTILITY
Main
Third IDE Master
Device : Hard Disk
Vendor : HDT722516DLA380
Size : 164.7GB
LBA Mode : Supported
Block Mode : 16Sectors
PIO Mode : 4
Async DMA : MultiWord DMA-2
Ultra DMA : Ultra DMA-6
SMART Monitoring: Supported
LBA/Large Mode [Auto]
Block(Multi-sector Transfer)M [Auto]
PIO Mode [Auto]
DMA Mode [Auto]
SMART Monitoring [Auto]
32Bit Data Transfer [Enabled]
Disabled: Disables LBA Mode.
Ayto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2008, American Megatrends, Inc.

The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to [Auto] enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) M [Auto]

Enables or disables data multi-sectors transfers. When set to [Auto], the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to [Disabled], the data transfer from and to the device occurs one sector at a time.
Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode.
Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode.
IConfiguration options: [Auto] [SWDMA0] [SWDMA1] [SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2] [UDMA3] [UDMA4] [UDMA5] [UDMA6]

SMART Monitoring [Auto]

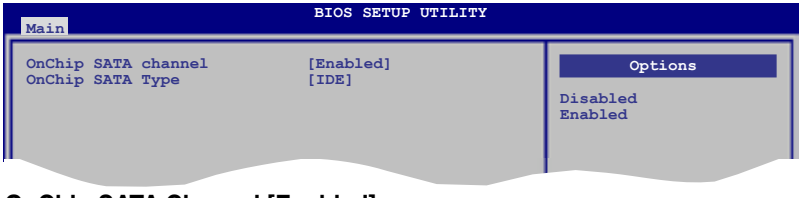
Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

Enables or disables 32-bit data transfer.
Configuration options: [Disabled] [Enabled]

2.3.6 Storage Configuration

The Storage Configuration menu allows you to configure your storage device(s). Select an item then press <Enter> to display the sub-menu.



OnChip SATA Channel [Enabled]

Enables or disables OnChip SATA Channel.
Configuration options: [Disabled] [Enabled]

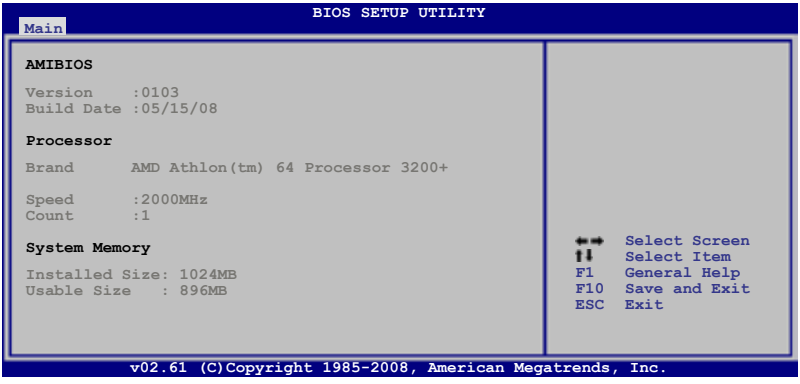
OnChip SATA Type [IDE]

This item appears only when you set the **OnChip SATA Channel** item to [Enabled] and allows you to set the OnChip SATA Type.
Configuration options: [IDE] [RAID] [AHCI]

- If you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices, keep the default setting [IDE].
- If you want the Serial ATA hard disk drives to use the Advanced Host Controller Interface (AHCI), set this item to [AHCI]. The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.
- If you want to create a RAID 0, RAID 1, and RAID 10 configuration from the Serial ATA hard disk drives, set this item to [RAID].

2.3.7 System Information

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu.



AMI BIOS

Displays the auto-detected BIOS information.

Processor

Displays the auto-detected CPU specification.

System Memory

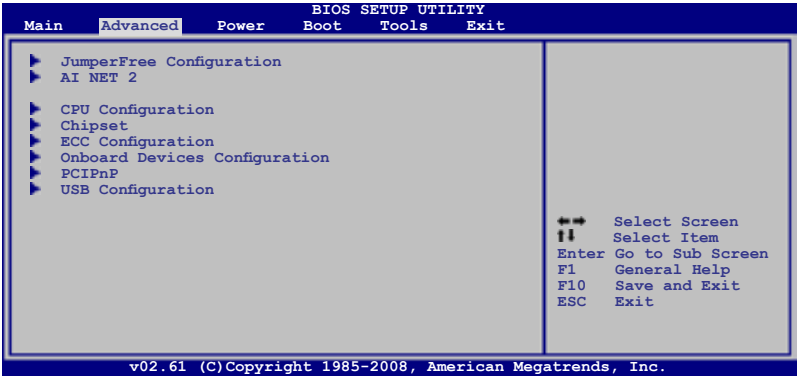
Displays the auto-detected system memory.

2.4 Advanced menu

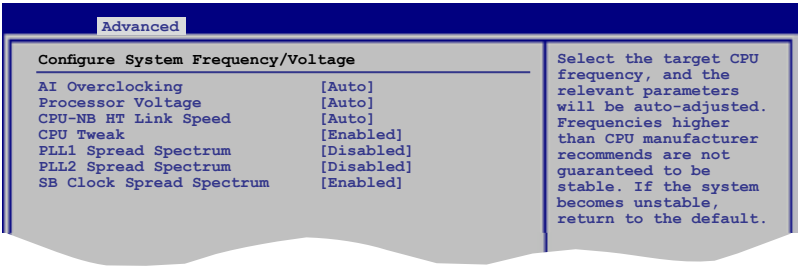
The Advanced menu items allow you to change the settings for the CPU and other system devices.

Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

The configuration options for this chapter vary depending on the CPU and DIMM model you install on the motherboard.



2.4.1 Jumperfree Configuration


Advanced
Configure System Frequency/Voltage
AI Overclocking [Auto]
Processor Voltage [Auto]
CPU-NB HT Link Speed [Auto]
CPU Tweak [Enabled]
PLL1 Spread Spectrum [Disabled]
PLL2 Spread Spectrum [Disabled]
SB Clock Spread Spectrum [Enabled]
Select the target CPU frequency, and the relevant parameters will be auto-adjusted. Frequencies higher than CPU manufacturer recommends are not guaranteed to be stable. If the system becomes unstable, return to the default.

AI Overclocking [Auto]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select any one of the preset overclocking configuration options:

Manual	Allows you to individually set overclocking parameters.
Auto	Loads the optimal settings for the system.
Standard	Loads the standard settings for the system.performance.
Overclock Profile	Loads overclocking profiles with optimal parameters for stability when overclocking.

The following item appears only when you set the **Ai Overclocking** item to [Overclock Profile].

Overclock Options [Overclock 5%]

Allows you to set the overclocking options.
Configuration options: [Overclock 3%] [Overclock 5%] [Overclock 10%] [Overclock 15%] [Overclock 20%] [Overclock 30%]

The following two items appear only when you set the **Ai Overclocking** item to [Manual].

FSB Frequency [XXX]

Displays the frequency sent by the clock generator to the system bus and PCI bus. Use the <+> and <-> keys to adjust the FSB frequency. You can also type the desired FSB frequency using the numeric keypad. The values range from 200 to 600.

PCIE Frequency [XXX]

Use the <+> and <-> keys to adjust the PCIE frequency. You can also type the desired PCIE frequency using the numeric keypad. The values range from 100 to 150.

The following item appears only when you set the **Ai Overclocking** item to [Manual], [Standard], or [Overclock Profile].

Processor Frequency Multiplier [Auto]

Allows selection of the processor frequency multiplier.
Configuration options: [Auto] [x4.0 800 MHz] [x5.0 1000 MHz] [x6.0 1200 MHz] [x7.0 1400 MHz] [x8.0 1600 MHz] [x9.0 1800 MHz] [x10.0 2000 MHz] [x11.0 2200 MHz] [x12.0 2400 MHz] [x13.0 2600 MHz]

The following two items are adjusted by typing the desired values using the numeric keypad and press the <Enter> key. You can also use the <+> and <-> keys to adjust the value. To restore the default setting, type [auto] using the keyboard and press the <Enter> key.

Processor Voltage [Auto]

Allows selection of the Processor Voltage. The values range from 0.8000V to 1.7000V with a 0.0125V interval.

CPU-NB HT Link Speed [Auto]

Allows you to set the CPU-Northbridge HyperTransport link speed.
Configuration options: [Auto] [200 MHz] [400 MHz] [600 MHz] [800 MHz] [1 GHz]

The following three items appears only when you set the **Ai Overclocking** item to [Manual], [Standard], or [Overclock Profile] and are adjusted by typing the desired values using the numeric keypad and press the <Enter> key. You can also use the <+> and <-> keys to adjust the value. To restore the default setting, type [auto] using the keyboard and press the <Enter> key.

DRAM Voltage [Auto]

Allows selection of the DDR2 reference voltage. The values range from 1.90V to 2.25V with a 0.05V interval.

Northbridge Voltage [Auto]

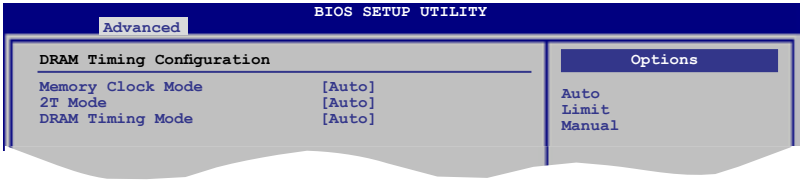
Allows you to set the Northbridge Voltage.
Configuration options: [Auto] [1.10V] [1.20V] [1.30V] [1.40V]

CPU Tweak [Enabled]

Allows you to enable or disable the CPU Tweak feature.
Configuration options: [Enabled] [Disabled]

DRAM Timing Configuration

This sub-menu allows selection of the DRAM Timing Configuration.



The configuration options for some of the following items vary depending on the DIMMs you install on the motherboard.

Memory Clock Mode [Auto]

Allows selection of the DRAM Frequency programming method.
Configuration options: [Auto] [Limit] [Manual]

Memclock Value [400 MHz]
This sub-item appears only when you set the Memory Clock Mode item to [Limit] and [Manual].
Configuration options: [400 MHz] [533 MHz] [667 MHz] [800 MHz] [1066 MHz]*

2T Mode [Auto]

Allows selection of the 2T Mode.
Configuration options: [Auto] [Disabled] [Enabled]

DRAM Timing Mode [Auto]

Allows selection of the DRAM Timing Mode.
Configuration options: [Auto] [DCT 0]

The following sub-items appear only when you set the DRAM Timing Mode item to [DCT 0].

CAS Latency (CL) [Auto]
Configuration options: [Auto] [3 CLK] [4 CLK] [5 CLK] [6 CLK] [7 CLK DH_Only]

TCWL [Auto]
Configuration options: [Auto] [5 CLk] [6 CLK] [7 CLK] [8 CLK]

TRCD [Auto]
Configuration options: [Auto] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

TRP [Auto]
[Auto] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

TRAS [Auto]
Configuration options: [Auto] [5 CLK] [6 CLK] ~ [17 CLK] [18 CLK]

tWR [Auto]
Configuration options: [Auto] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

tRFC0 [Auto]
Configuration options: [Auto] [75ns] [105ns] [127.5ns] [195ns] [327.5ns]

tRFC1 [Auto]
Configuration options: [Auto] [75ns] [105ns] [127.5ns] [195ns] [327.5ns]

tRFC2 [Auto]
Configuration options: [Auto] [75ns] [105ns] [127.5ns] [195ns] [327.5ns]

tRFC3 [Auto]
Configuration options: [Auto] [75ns] [105ns] [127.5ns] [195ns] [327.5ns]

TRC [Auto]
Configuration options: [Auto] [11 CLK] [12 CLK] ~ [25 CLK] [26 CLK]

TRRD [Auto]
Configuration options: [Auto] [2 CLK] [3 CLK] [4 CLK] [5 CLK]

tWTR [Auto]
Specifies the write to read delay when accessing the same DIMM.
Configuration options: [Auto] [1 CLK] [2 CLK] [3 CLK]

tRTP [Auto]
Specifies the read CAS# to precharge time.
Configuration options: [Auto] [2-4 CLK] [3-5 CLK]

tRWTTO [Auto]
Configuration options: [Auto] [2 CLK] [3 CLK] ~ [8 CLK] [9 CLK]

tWRRD [Auto]
Specifies the write to read delay when accessing different DIMMs.
Configuration options: [Auto] [0 CLK] [1 CLK] [2 CLK] [3 CLK]

tWRWR [Auto]
Configuration options: [Auto] [1 CLK] [2 CLK] [3 CLK]

tRDRD [Auto]
Configuration options: [Auto] [2 CLk] [3 CLK] [4 CLK] [5 CLK]

PLL1/2 Spread Spectrum [Disabled]

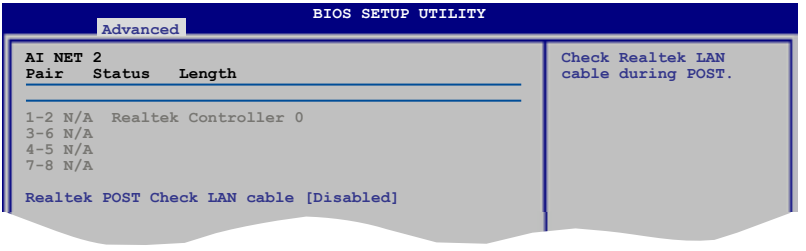
Allows selection of the PLL1/2 Spread Spectrum settings for EMI control.
Configuration options: [Disabled] [Enabled]

SB Clock Spread Spectrum [Enabled]

Allows selection of the South Bridge Clock Spread Spectrum settings for EMI control. It is recommended to leave this item to the default setting for system stability.
Configuration options: [Disabled] [Enabled]

2.4.2 AI NET 2

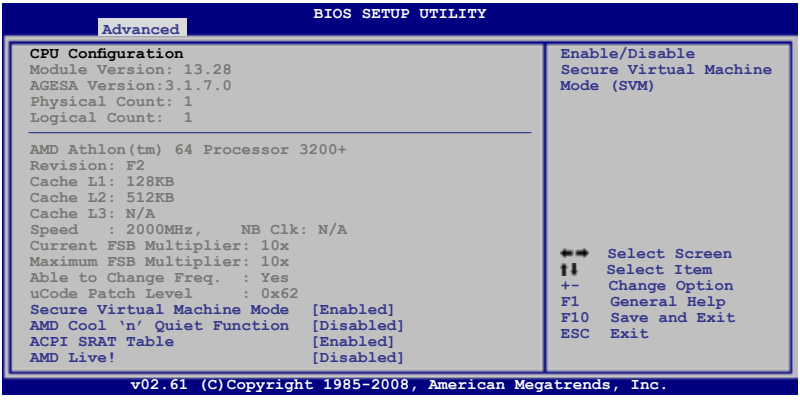
This menu displays the status of the Local Area Network (LAN) cable connected to the LAN (RJ-45) port.



Realtek POST Check LAN cable [Disabled]

Allows you to enable or disable LAN cable check during POST. When enabled, the menu reports the cable faults or shorts, and displays the point (length) where the faults or shorts are detected.
Configuration options: [Disabled] [Enabled]

2.4.3 CPU Configuration



Secure Virtual Machine Mode [Enabled]

Allows you to enable or disable the AMD Secure Virtual Machine mode.
Configuration options: [Disabled] [Enabled]

AMD Cool'n'Quiet Function [Disabled]

Enables or disables the AMD Cool'n'Quiet function.
Configuration options: [Disabled] [Enabled]

ACPI SRAT Table [Enabled]

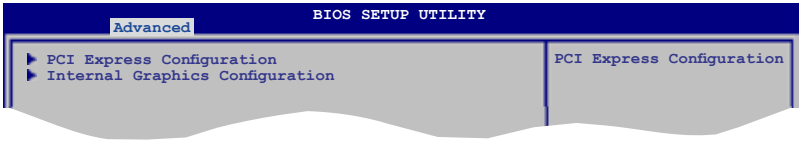
Enables or disables the building of ACPI SRAT Table.
Configuration options: [Disabled] [Enabled]

AMD Live! [Disabled]

Enables or disables the AMD Live! technology support.
Configuration options: [Disabled] [Enabled]

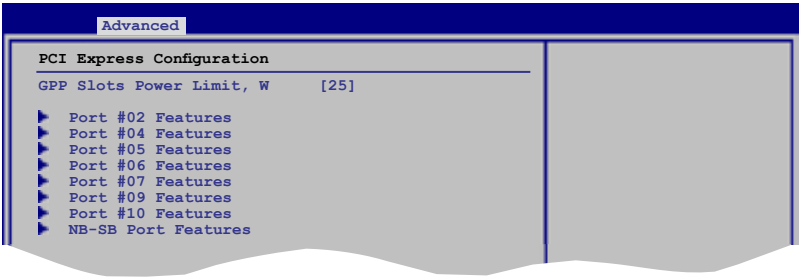
2.4.4 Chipset

The Chipset menu allows you to change the advanced chipset settings. Select an item then press <Enter> to display the sub-menu.



PCI Express Configuration

This menu allows you to change the PCI Express Configuration settings. Select an item then press <Enter> to display the sub-menu.



GPP Slots Power Limit, W [25]

Use the <+> and <-> keys to change the value or type the desired value using the numeric keypad. The values range from 0 to 255.

Port #02 Features

Gen2 High Speed Mode [Disabled]
Configuration options: [Auto] [Disabled] [Software Initiated] [Advertised RC]

Link ASPM [Disabled]
Configuration options: [Disabled] [L0s] [L1] [L0s & L1]

Link Width [Auto]
Configuration options: [Auto] [x1] [x2] [x4] [x8] [x16]

Slot Power Limit, W [75]
Use the <+> and <-> keys to change the value or type the desired value using the numeric keypad. The values range from 0 to 255.

Port #04/05/06/07/09/10 Features

Gen2 High Speed Mode [Disabled]
Configuration options: [Auto] [Disabled] [Software Initiated] [Advertised RC]

Link ASPM [Disabled]
Configuration options: [Disabled] [L0s] [L1] [L0s & L1]

NB-SB Port Features

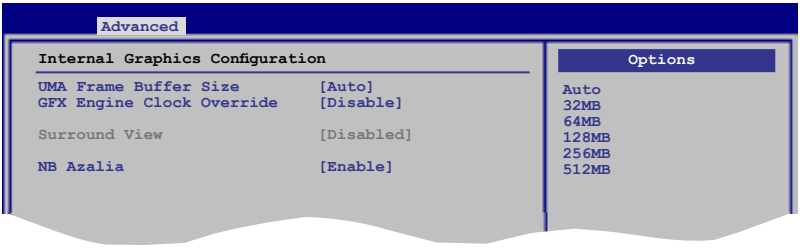
NB-SB link ASPM [Disabled]
Configuration options: [Disabled] [L1]

NP NB-SB VC1 Traffic Support [Disabled]
Configuration options: [Enabled] [Disabled]

Link Width [Auto]
Configuration options: [Auto] [x1] [x2] [x4]

Internal Graphics Configuration

This menu allows you to change the onboard graphics configuration settings. Select an item then press <Enter> to display the sub-menu.



UMA Frame Buffer Size [Auto]

Configuration options: [Auto] [32MB] [64MB] [128MB] [256MB] [512MB]

GFX Engine Clock Override [Disable]

Allows you to enable or disable the GFX Engine Clock Override support.
Configuration options: [Disable] [Enable]

GFX Engine Clock [500]

This item appears only when you enable the **GFX Engine Clock Override** item. Use the <+> and <-> keys to change the value or type the desired value using the numeric keypad. The values range from 150 to 1500.

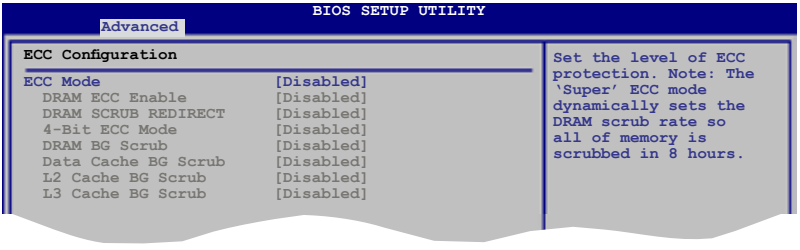
Surround View [Disabled]

If you set the PCI Express device as the primary display and enable this item, you may use the internal graphics as the secondary display.
Configuration options: [Disabled] [Enable]

NB Azalia [Enable]

Enables or disables the Northbridge Azalia support.
Configuration options: [Disabled] [Enable]

2.4.5 ECC Configuration


BIOS SETUP UTILITY
Advanced
ECC Configuration
ECC Mode [Disabled]
DRAM ECC Enable [Disabled]
DRAM SCRUB REDIRECT [Disabled]
4-Bit ECC Mode [Disabled]
DRAM BG Scrub [Disabled]
Data Cache BG Scrub [Disabled]
L2 Cache BG Scrub [Disabled]
L3 Cache BG Scrub [Disabled]
Set the level of ECC protection. Note: The 'Super' ECC mode dynamically sets the DRAM scrub rate so all of memory is scrubbed in 8 hours.

ECC Mode [Disabled]

Disables or sets the DRAM ECC mode that allows the hardware to report and correct memory errors. Set this item to [Basic] [Good] or [Max] to allow ECC mode auto-adjustment. Set this item to [Super] to adjust the **DRAM BG Scrub** sub-item manually. You may also adjust all sub-items by setting this item to [User].
Configuration options: [Disabled] [Basic] [Good] [Super] [Max] [User]

DRAM ECC Enable [Disabled]
Set this item to [Enabled] to allow hardware to report and correct memory errors automatically, maintaining system integrity.
Configuration options: [Disabled] [Enabled]

DRAM SCRUB REDIRECT [Disabled]
Enables or disables the DRAM SCRUB REDIRECT feature that allows the system to correct the DRAM ECC errors immediately when they occur.
Configuration options: [Disabled] [Enabled]

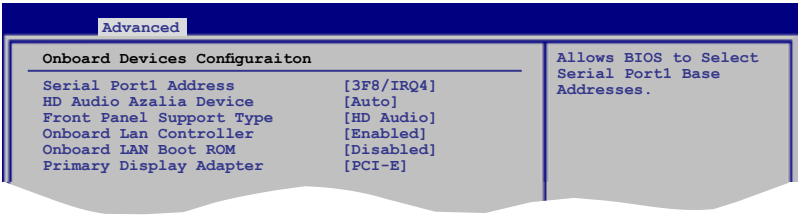
4-Bit ECC Mode [Disabled]
Enables or disables the ECC chip kill feature.
Configuration options: [Disabled] [Enabled]

DRAM BG SCRUB [Disabled]
Disables or sets the DRAM BG Scrub.
Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us] [1.31ms] [2.62ms] [5.24ms] [10.49ms] [20.97ms] [42.00ms] [84.00ms]

Data Cache BG Scrub [Disabled]
Disables or sets the Data Cache BG Scrub. This item allows the L1 Data Cache RAM to be corrected when idle.
Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us] [1.31ms] [2.62ms] [5.24ms] [10.49ms] [20.97ms] [42.00ms] [84.00ms]

L2/L3 Cache BG Scrub [Disabled]
Disables or sets the L2/L3 Cache BG Scrub. This item allows the L2/L3 Data Cache RAM to be corrected when idle.
Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us] [1.31ms] [2.62ms] [5.24ms] [10.49ms] [20.97ms] [42.00ms] [84.00ms]

2.4.6 Onboard Devices Configuration


Advanced
Onboard Devices Configuraiton
Serial Port1 Address [3F8/IRQ4]
HD Audio Azalia Device [Auto]
Front Panel Support Type [HD Audio]
Onboard Lan Controller [Enabled]
Onboard LAN Boot ROM [Disabled]
Primary Display Adapter [PCI-E]
Allows BIOS to Select Serial Port1 Base Addresses.

Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

HD Audio Azalia Device [Auto]

Allows you to enable or disable the High Definition Audio. The following item appears only when you set this item to [Auto].
Configuration options: [Auto] [Disabled]

Front Panel Support Type [HD Audio]

Allows you to set the front panel audio connector (AAFP) mode to legacy AC'97 or high-definition audio depending on the audio standard that the front panel audio module supports.
Configuration options: [AC97] [HD Audio]

Onboard LAN Controller [Enabled]

Configuration options: [Enable] [Disabled]

Onboard LAN Boot ROM [Disabled]
This item appears only when you enable the previous item.
Configuration options: [Enable] [Disabled]

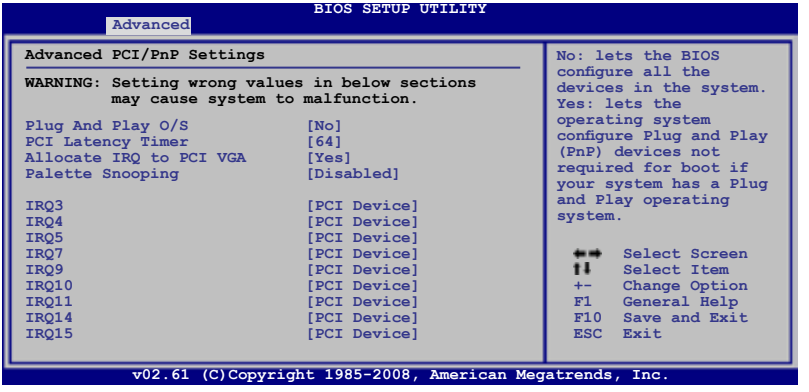
Primary Display Adapter [PCI-E]

Allows you to select which graphics controller to use as the primary boot device.
Configuration options: [PCI-E] [PCI] [Onboard]

2.4.7 PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices.

Take caution when changing the settings of the **PCI PnP** menu items. Incorrect field values can cause the system to malfunction.


BIOS SETUP UTILITY
Advanced
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
Plug And Play O/S [No]
PCI Latency Timer [64]
Allocate IRQ to PCI VGA [Yes]
Palette Snooping [Disabled]
IRQ3 [PCI Device]
IRQ4 [PCI Device]
IRQ5 [PCI Device]
IRQ7 [PCI Device]
IRQ9 [PCI Device]
IRQ10 [PCI Device]
IRQ11 [PCI Device]
IRQ14 [PCI Device]
IRQ15 [PCI Device]
No: lets the BIOS configure all the devices in the system. Yes: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2008, American Megatrends, Inc.

Plug and Play O/S [No]

When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.
Configuration options: [No] [Yes]

PCI Latency Timer [64]

Allows you to select the value in units of PCI clocks for the PCI device latency timer register.
Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested.
Configuration options: [No] [Yes]

Palette Snooping [Disabled]

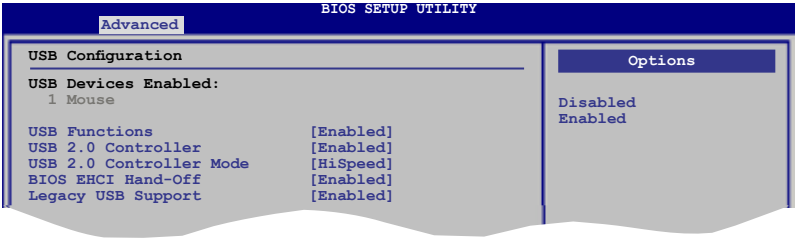
When set to [Enabled], the palete snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly.
Configuration options: [Disabled] [Enabled]

IRQ-xx assigned to [PCI Device]

When set to [PCI Device], the specific IRQ is free for use of PCI/PnP devices. When set to [Reserved], the IRQ is reserved for legacy ISA devices.
Configuration options: [PCI Device] [Reserved]

2.4.8 USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options.



The **USB Devices Enabled** item shows the auto-detected values. If no USB device is detected, the item shows None.

USB Functions [Enabled]

Allows you to enable or disable the USB functions.
Configuration options: [Disabled] [Enabled]

The following item appears only when you set **USB Functions** to [Enabled].

USB 2.0 Controller [Enabled]

Allows you to enable or disable the USB 2.0 controller.
Configuration options: [Enabled] [Disabled]

USB 2.0 Controller Mode [HiSpeed]

Allows you to set the USB 2.0 controller mode to HiSpeed (480 Mbps) or FullSpeed (12 Mbps). Configuration options: [FullSpeed] [HiSpeed]

BIOS EHCI Hand-off [Enabled]

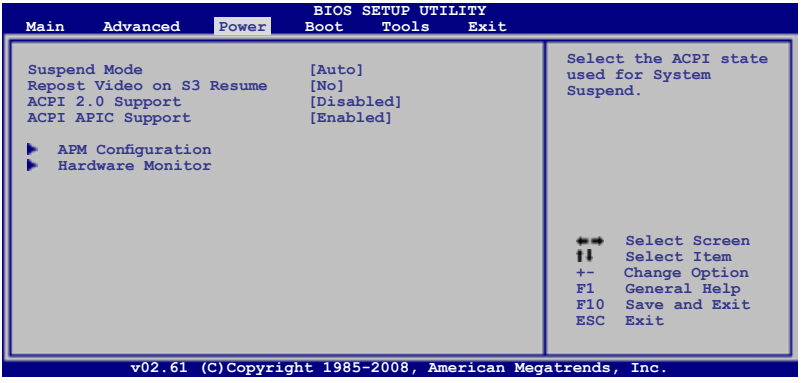
Allows you to enable the support for operating systems without an EHCI hand-off feature. Configuration options: [Disabled] [Enabled]

Legacy USB Support [Enabled]

Allows you to enable or disable the support for legacy USB devices. Setting to [Auto] allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.
Configuration options: [Disabled] [Enabled] [Auto]

2.5 Power menu

The Power menu items allow you to change the settings for the Advanced Configuration and Power Interface (ACPI) and the Advanced Power Management (APM). Select an item then press <Enter> to display the configuration options.



2.5.1 Suspend Mode [Auto]

Allows you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend.
Configuration options: [S1 (POS) Only] [S3 Only] [Auto]

2.5.2 Repost Video on S3 Resume [No]

Determines whether to invoke VGA BIOS POST on S3/STR resume.
Configuration options: [No] [Yes]

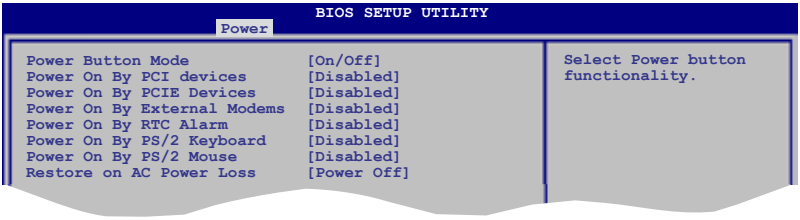
2.5.3 ACPI 2.0 Support [Disabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) 2.0 support.
Configuration options: [Disabled] [Enabled]

2.5.4 ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list.
Configuration options: [Disabled] [Enabled]

2.5.5 APM Configuration


BIOS SETUP UTILITY
Power
Power Button Mode [On/Off]
Power On By PCI devices [Disabled]
Power On By PCIE Devices [Disabled]
Power On By External Modems [Disabled]
Power On By RTC Alarm [Disabled]
Power On By PS/2 Keyboard [Disabled]
Power On By PS/2 Mouse [Disabled]
Restore on AC Power Loss [Power Off]
Select Power button functionality.

Power Button Mode [On/Off]

Allows you to set the power button function.
Configuration options: [On/Off] [Suspend]

Power On By PCI Devices [Disabled]

Allows you to enable or disable the PME to wake up from S5 by PCI devices.
Configuration options: [Disabled] [Enabled]

Power On By PCIE Devices [Disabled]

Allows you to enable or disable the PCIE devices to generate a wake event.
Configuration options: [Disabled] [Enabled]

Power On By External Modems [Disabled]

This allows either settings of [Enabled] or [Disabled] for powering up the computer when the external modem receives a call while the computer is in Soft-off mode.
Configuration options: [Disabled] [Enabled]

The computer cannot receive or transmit data until the computer and applications are fully running. Thus, connection cannot be made on the first try. Turning an external modem off and then back on while the computer is off causes an initialization string that turns the system power on.

Power On By RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is set to Enabled, the items RTC Alarm Date/ RTC Alarm Hour/ RTC Alarm Minute/ RTC Alarm Second will become user-configurable with set values.
Configuration options: [Disabled] [Enabled]

Power On By PS/2 Keyboard [Disabled]

Allows you to disable the Power On by PS/2 keyboard function or set specific keys on the PS/2 keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.
Configuration options: [Disabled] [Space Bar] [Power Key] [Ctrl-Esc]

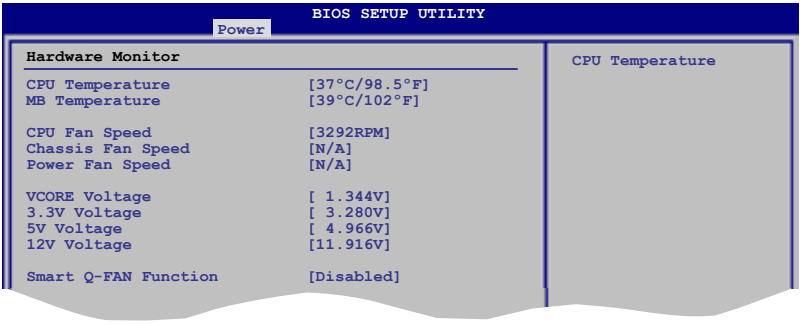
Power On By PS/2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 mouse to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.
Configuration options: [Disabled] [Enabled]

Restore On AC Power Loss [Power Off]

When set to Power Off, the system goes into off state after an AC power loss. When set to Power On, the system goes on after an AC power loss. When set to Last State, the system goes into either off or on state, whatever the system state was before the AC power loss.
Configuration options: [Power Off] [Power On] [Last State]

2.5.6 Hardware Monitor



CPU Temperature [xxx°C/xxx°F]
MB Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures. Select Ignored if you do not wish to display the detected temperatures.

CPU / Chassis / Power Fan Speed [xxxxRPM] or [Ignored]

The onboard hardware monitor automatically detects and displays the CPU / Chassis / Power fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A. Select Ignored if you do not wish to display the detected speed.

VCORE Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select [Ignored] if you do not want to detect this item.

Smart Q-Fan Function [Disabled]

Allows you to enable or disable the ASUS Q-Fan feature that smartly adjusts the fan speeds for more efficient system operation.
Configuration options: [Disabled] [Enabled]

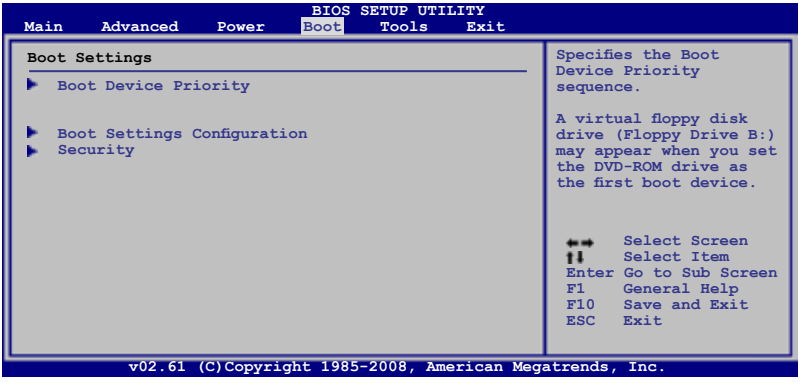
The following items appear only if you set the **Smart Q-Fan Function** to [Enabled].

Smart Q-Fan Profile [Optimal]

Allows you to set the appropriate performance level of the CPU Q-Fan. When set to [Optimal], the CPU fan automatically adjusts depending on the CPU temperature. Set this item to [Silent] to minimize fan speed for quiet CPU fan operation, or [Performance] to achieve maximum CPU fan speed.
Configuration options: [Performance] [Optimal] [Silent]

2.6 Boot menu

The Boot menu items allow you to change the system boot options. Select an item then press <Enter> to display the sub-menu.


BIOS SETUP UTILITY
Main Advanced Power Boot Tools Exit
Boot Settings
Boot Device Priority
Boot Settings Configuration
Security
Specifies the Boot Device Priority sequence.
A virtual floppy disk drive (Floppy Drive B:) may appear when you set the DVD-ROM drive as the first boot device.
Select Screen
Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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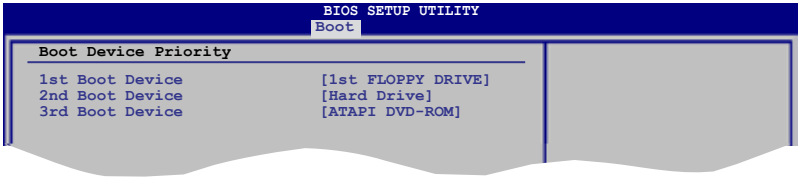
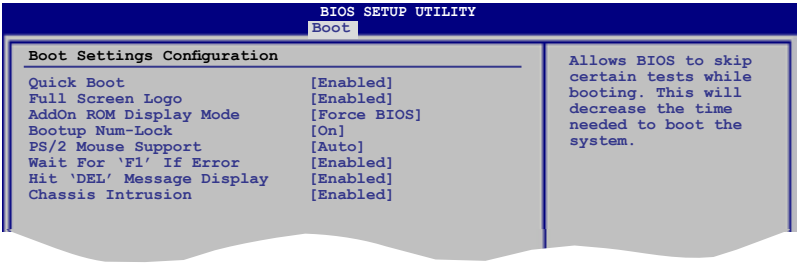
2.6.1 Boot Device Priority



1st ~ xxth Boot Device [1st FlOPPY DRIVE]

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.
Configuration options: [1st FlOPPY DRIVE] [Hard Drive] [ATAPI DVD-ROM] [Disabled]

2.6.2 Boot Settings Configuration


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Full Screen Logo [Enabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
PS/2 Mouse Support [Auto]
Wait For 'F1' If Error [Enabled]
Hit 'DEL' Message Display [Enabled]
Chassis Intrusion [Enabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

Quick Boot [Enabled]

Enabling this item allows the BIOS to skip some power on self tests (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items.
Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

This allows you to enable or disable the full screen logo display feature.
Configuration options: [Disabled] [Enabled]

Set this item to [Enabled] to use the ASUS MyLogo 2™ feature.

Add On ROM Display Mode [Force BIOS]

Sets the display mode for option ROM.
Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

Allows you to select the power-on state for the NumLock.
Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse.
Configuration options: [Disabled] [Enabled] [Auto]

Wait for 'F1' If Error [Enabled]

When set to Enabled, the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

Hit 'DEL' Message Display [Enabled]

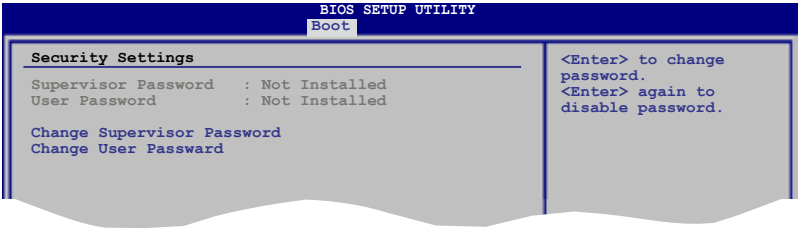
When set to Enabled, the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

Chassis Intrusion [Enabled]

Configuration options: [Disabled] [Enabled]

2.6.3 Security

The Security menu items allow you to change the system security settings. Select an item then press <Enter> to display the configuration options.



Change Supervisor Password

Select this item to set or change the supervisor password. The Supervisor Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a Supervisor Password:

1. Select the Change Supervisor Password item and press <Enter>.
2. From the password box, type a password composed of at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.

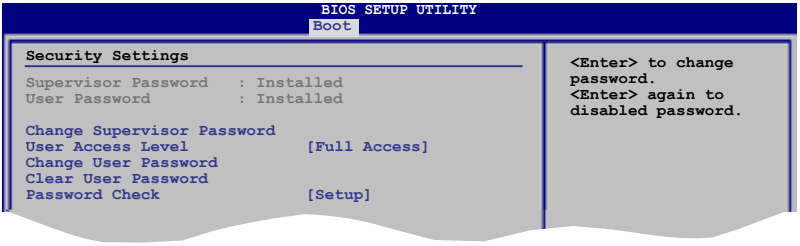
The message “Password Installed” appears after you successfully set your password.

To change the supervisor password, follow the same steps as in setting a user password.

To clear the supervisor password, select the Change Supervisor Password then press <Enter>. The message “Password Uninstalled” appears.

If you forget your BIOS password, you can clear clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section **1.9 Jumpers** for information on how to erase the RTC RAM.

After you have set a supervisor password, the other items appear to allow you to change other security settings.



User Access Level [Full Access]

This item allows you to select the access restriction to the Setup items.
Configuration options: [No Access] [View Only] [Limited] [Full Access]

No Access prevents user access to the Setup utility.

View Only allows access but does not allow change to any field.

Limited allows changes only to selected fields, such as Date and Time.

Full Access allows viewing and changing all the fields in the Setup utility.

Change User Password

Select this item to set or change the user password. The User Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a User Password:

1. Select the **Change User Password** item and press <Enter>.
2. On the password box that appears, type a password composed of at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.

The message “Password Installed” appears after you set your password successfully.

To change the user password, follow the same steps as in setting a user password.

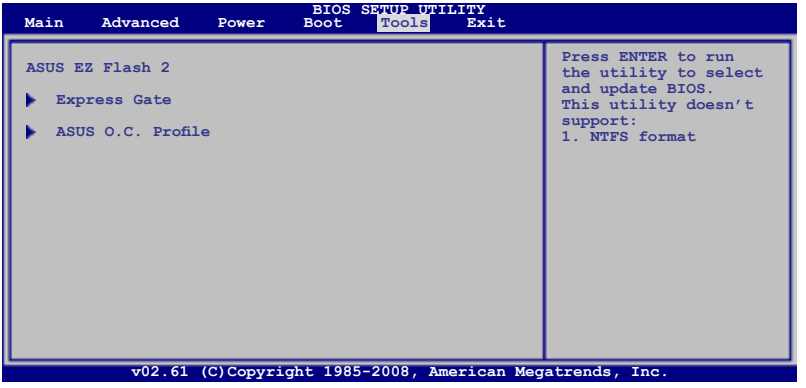
Clear User Password

Select this item to clear the user password.

Password Check [Setup]

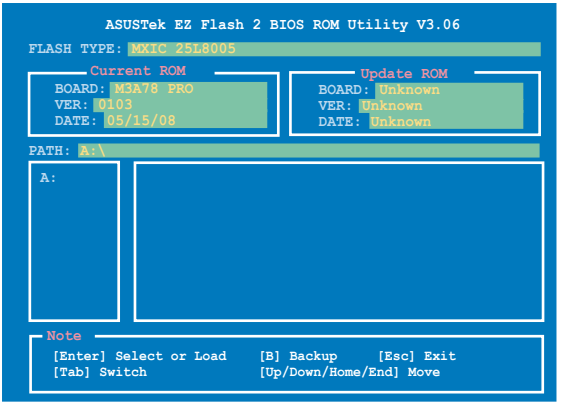
When set to [Setup], BIOS checks for user password when accessing the Setup utility. When set to [Always], BIOS checks for user password both when accessing Setup and booting the system.
Configuration options: [Setup] [Always]

2.7 Tools menu

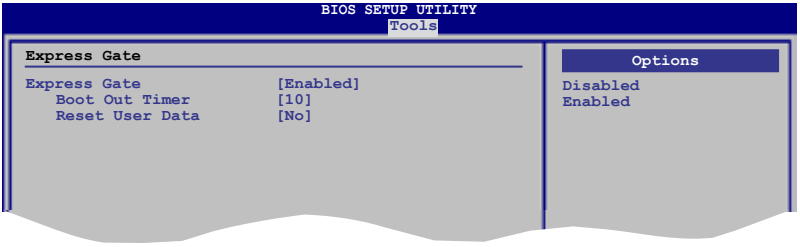


2.7.1 ASUS EZ Flash 2

Allows you to run ASUS EZ Flash 2. When you press <Ok>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Ok> to confirm your choice.



2.7.2 Express Gate



You have to install the ASUS Express Gate application from the support DVD first before you can enable this feature. See page 3-5 for details.

Express Gate [Enabled]

Allows you to enable or disable the ASUS Express Gate feature. ASUS Express Gate is a unique instant-on environment that provides quick access to the Internet browser and Skype.
Configuration options: [Enabled] [Disabled]

Boot Out Timer [10]
Sets countdown duration that the system waits at the Express Gate's first screen before starting Windows or other installed OS. Choose [Disabled] to stay at the first screen of Express Gate for user action.
Configuration options: [Disabled] [1 second] ~ [30 seconds]

The time length is adjusted by typing the desired values using the numeric keypad and press the <Enter> key.

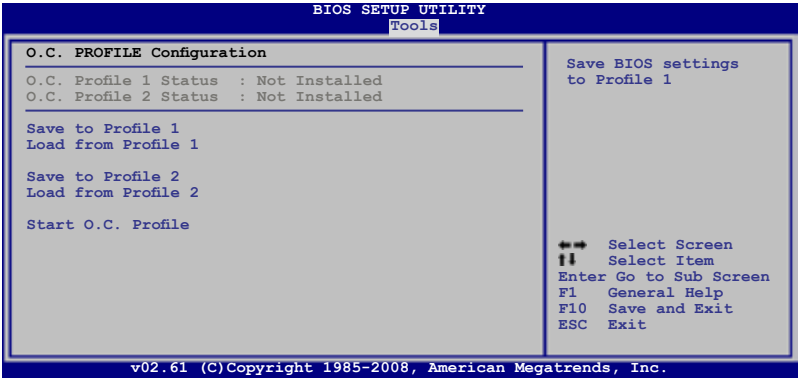
Reset User Data [No]
Allows you to clear Express Gate's user data.
Configuration options: [No] [Reset]

When setting this item to [Reset], make sure to save the setting to the BIOS so that the user data will be cleared the next time you enter the Express Gate. User data includes the Express Gate's settings as well as any personal information stored by the web browser (bookmarks, cookies, browsing history, etc.). This is useful in the rare case where corrupt settings prevent the Express Gate environment from launching properly.

The first time wizard will run again when you enter the Express Gate environment after clearing its settings.

2.7.3 ASUS O.C. Profile

This item allows you to store or load multiple BIOS settings.



Save to Profle 1/2

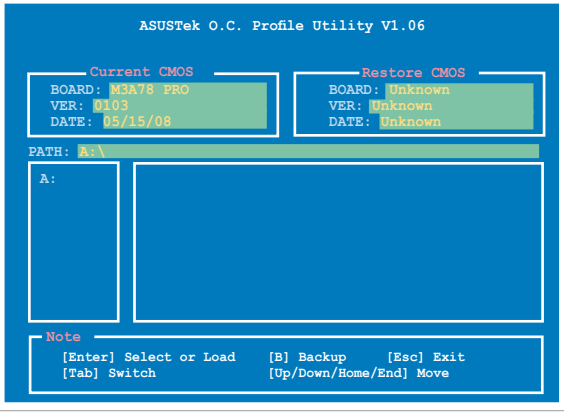
Allows you to save the current BIOS file to the BIOS Flash. Press <Enter> to save the file.

Load from Profile 1/2

Allows you to load the previous BIOS settings saved in the BIOS Flash. Press <Enter> to load the file.

Start O.C. Profile

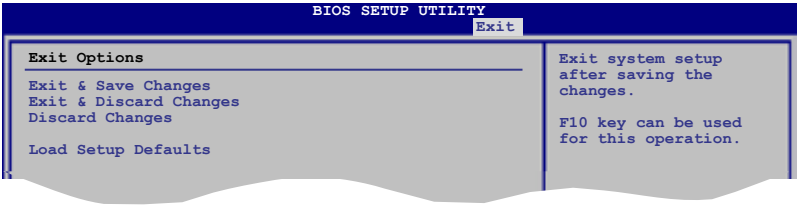
Allows you to run the utility to save and load CMOS. Press <Enter> to run the utility.



- This function can support devices such as a USB flash disk or a floppy disk with FAT 32/16 format and single partition only.
- DO NOT shut down or reset the system while updating the BIOS to prevent the system boot failure!

2.8 Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.



Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Exit & Save Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM so it stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select OK to save changes and exit.

If you attempt to exit the Setup program without saving your changes, the program prompts you with a message asking if you want to save your changes before exiting. Press <Enter> to save the changes while exiting.

Exit & Discard Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than System Date, System Time, and Password, the BIOS asks for a confirmation before exiting.

Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select OK to discard any changes and load the previously saved values.

Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select OK to load default values. Select Exit & Save Changes or make other changes before saving the values to the non-volatile RAM.

This chapter describes the contents of the support DVD that comes with the motherboard package.

3 Software support

3.1 Installing an operating system

This motherboard supports Windows® XP / Vista operating systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

- Motherboard settings and hardware options vary. Use the setup procedures presented in this chapter for reference only. Refer to your OS documentation for detailed information.
- Make sure that you install the Windows® XP Service Pack 2 or later versions before installing the drivers for better compatibility and system stability.

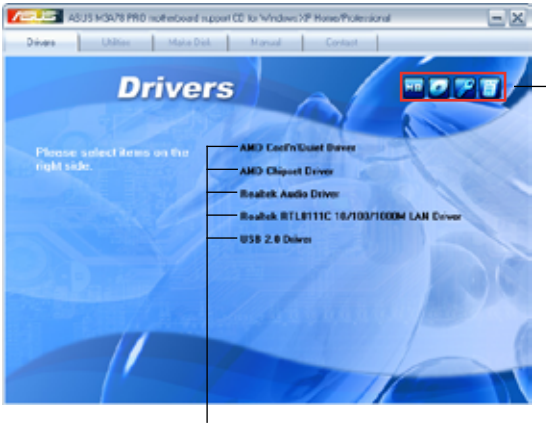
3.2 Support DVD information

The support DVD that came with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.

The contents of the support DVD are subject to change at any time without notice. Visit the ASUS website(www.asus.com) for updates.

3.2.1 Running the support DVD

Place the support DVD to the optical drive. The DVD automatically displays the Drivers menu if Autorun is enabled in your computer.



Click an icon to display support DVD / motherboard information

Click an item to install

If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the DVD.

3.2.2 Drivers menu

The drivers menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.

AMD Cool 'n' Quiet Driver (For Windows XP only)

Installs the AMD Cool 'n' Quiet driver.

AMD Chipset Driver

Installs the AMD chipset driver.

Realtek Audio Driver

Installs the Realtek® ALC1200 audio driver and application.

Realtek RTL8111C 10/100/1000M LAN Driver

Installs the Realtek RTL8111C Gigabit LAN driver.

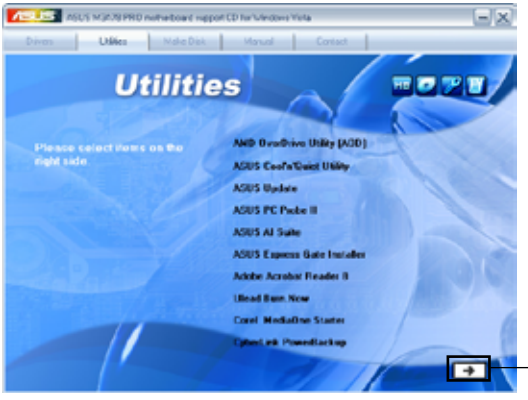
USB 2.0 Driver (For Windows XP only)

Installs the USB 2.0 driver.

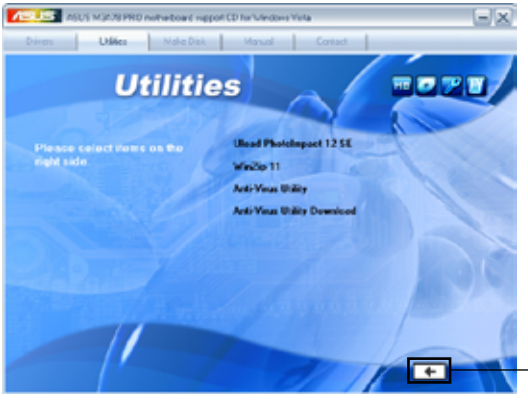
The screen display and drivers option may not be the same for different operating system versions.

3.2.3 Utilities menu

The Utilities menu shows the applications and other software that the motherboard supports.



Click to display the next screen



Click to display the previous screen

AMD OverDrive Utility (AOD)

Installs the AMD OverDrive Utility which allows configuration of system and overclocking settings in Windows environment.

ASUS Cool 'n' Quiet Utility

This item installs the ASUS Cool 'n' Quiet utility.

ASUS Update

The ASUS Update utility allows you to update the motherboard BIOS in a Windows® environment. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP).

ASUS PC Probe II

This smart utility monitors the fan speed, CPU temperature, and system voltages, and alerts you of any detected problems. This utility helps you keep your computer in healthy operating condition.

ASUS AI Suite

Installs the ASUS AI Suite.

ASUS Express Gate Installer

Installs the ASUS Express Gate application.

Adobe Acrobat Reader 8

Installs the Adobe® Acrobat® Reader that allows you to open, view, and print documents in Portable Document Format (PDF).

Microsoft DirectX 9.0c (For Windows XP only)

Installs the Microsoft® DirectX 9.0c driver. The Microsoft DirectX® 9.0c is a multimedia technology that enhances computer graphics and sound. DirectX® improves the multimedia features of you computer so you can enjoy watching TV and movies, capturing videos, or playing games in your computer. Visit the Microsoft website (www.microsoft.com) for updates.

Ulead Burn.Now

Installs the Ulead Burn.Now application for Audio DVD, CD and data disc creation.

Corel MediaOne Starter

Installs the Corel MediaOne Starter application to easily manage, edit share and protect your multimedia data.

CyberLink PowerBackup

Installs CyberLink PowerBackup to back up and restore your data easily.

Ulead PhotoImpact 12 SE

Installs the PhotoImpact image editing software.

Winzip 11

Installs the Winzip utility for easy file-compression and protection.

Anti-Virus Utility

The anti-virus application scans, identifies, and removes computer viruses. View the online help for detailed information.

Anti-Virus Utility Download

Installs to update your anti-virus utility version.

3.2.4 Make Disk menu

The Make Disk menu allows you to make a RAID driver disk.

ATI RAID/AHCI 32/64bit WinXP Driver

Allows you to create an ATI RAID/AHCI driver disk for 32/64bit Windows® XP operating system.

ATI RAID/AHCI 32/64bit Vista Driver

Allows you to create an ATI RAID/AHCI driver disk for 32/64bit Windows® Vista operating system.

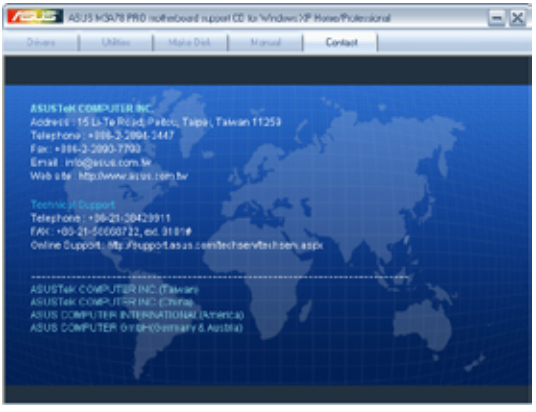
3.2.5 Manual menu

The Manual menu contains a list of supplementary user manuals. Click an item to open the folder of the user manual.

Most user manual files are in Portable Document Format (PDF). Install the Adobe® Acrobat® Reader from the Utilities menu before opening a user manual file.

3.2.6 ASUS Contact information

Click the Contact tab to display the ASUS contact information. You can also find this information on the inside front cover of this user guide.



3.2.7 Other information

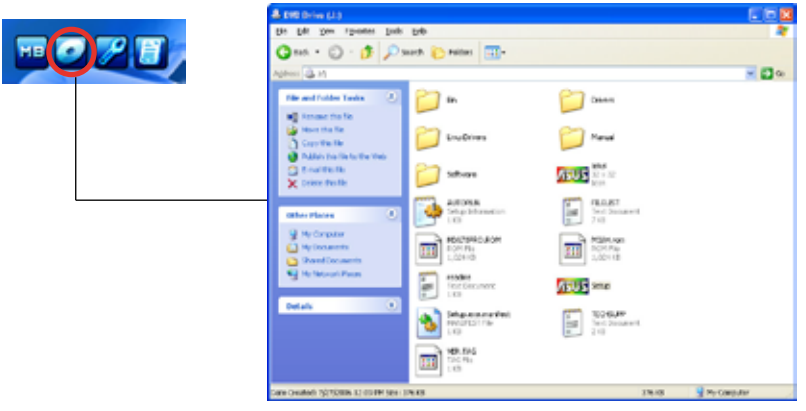
The icons on the top right corner of the screen give additional information on the motherboard and the contents of the support DVD. Click an icon to display the specified information.

Motherboard Info

Displays the general specifications of the motherboard.

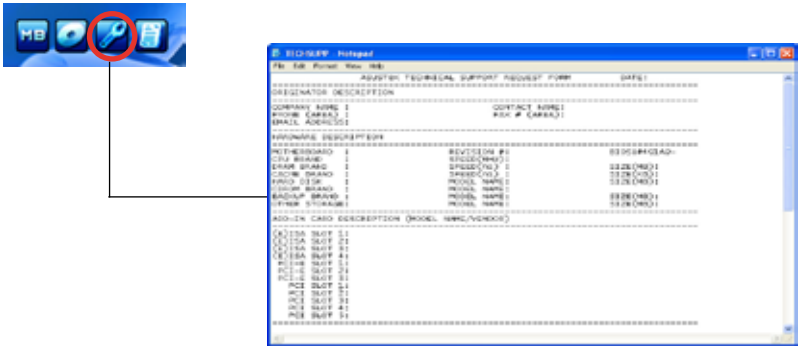
Browse this DVD

Displays the support DVD contents in graphical format.



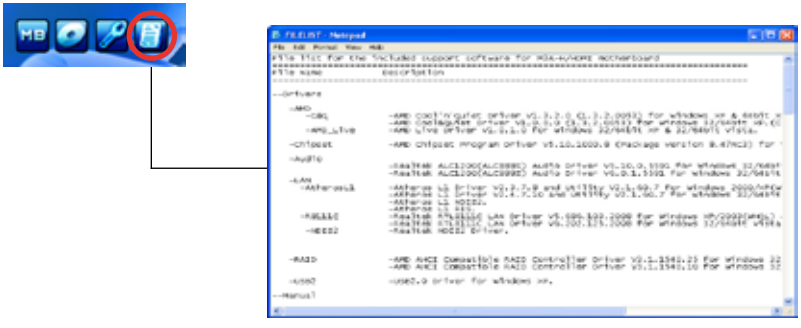
Technical support Form

Displays the ASUS Technical Support Request Form that you have to fill out when requesting technical support.



Filelist

Displays the contents of the support DVD and a brief description of each in text format.



3.3 ASUS Express Gate

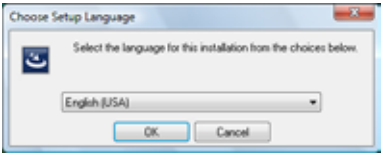
ASUS Express Gate is an instant-on environment that gives you quick access to the Internet. Within a few seconds of powering on your computer, you will be at the Express Gate menu where you can start the web browser, Skype, or other Express Gate softwares.

Installing ASUS Express Gate

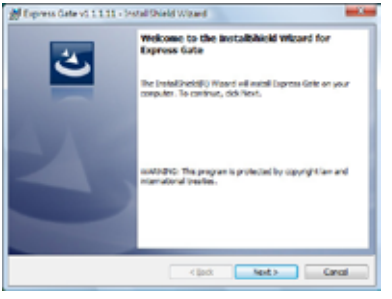
- The bootup speed depends on system configurations.
- Due to chipset limitation, ASUS Express Gate supports USB devices or SATA HDDs (IDE mode) connected to SATA port 1-4 only. Set the **SATA Operation Mode** item in the BIOS to [IDE] before installing and using ASUS Express Gate.
- Currently, ASUS Express Gate DOES NOT support PATA IDE HDDs. Visit www.asus.com for future BIOS and Express Gate software updates.
- ASUS Express Gate supports installation on USB HDDs and Flash drives, but the software performance may be slower than installed on SATA HDDs.

To install Express Gate on your computer:

1. Place the support CD/DVD to the optical drive. The **Drivers** installation tab appears if your computer has enabled Autorun feature.
2. Click the **Utilities** tab, then click **ASUS Express Gate Installer**.
3. Select the language for installation and click **OK**.



4. The InstallShield Wizard for Express Gate appears. Click **Next** to continue.



5. Select the target disk volume for you to install Express Gate. If you have multiple volumes and OS installed in your hard drive, it is recommended to install Express Gate in **Volume C**. Click **Next** to continue.
6. Follow the screen instructions to complete installation.

The First Screen

Express Gate's first screen appears within a few seconds after you power on the computer. From here, you can immediately start the web browser or Skype.

You can also choose to continue booting normally (e.g. to your installed OS such as Windows), enter BIOS setup, or power off.

If you don't make any selection, Express Gate will automatically exit and boot to your normal OS after a certain amount of time. The timer countdown is shown on-screen inside the "boot to OS" button. As you move the mouse or type a key, the countdown stops and the timer disappears, so you can take your time to make a selection.

The Express Gate Environment

The very first time you enter the Express Gate environment (by launching either web or Skype from the first screen), a first time wizard will guide you through basic Express Gate configurations. Basic configurations include language, date and time and screen resolution.

Once inside the Express Gate environment, click on the icons on the LaunchBar, by default at bottom of the screen, to launch or switch between softwares. You can re-arrange, re-size and move windows. Bring a window to the foreground by clicking within it or by clicking on its corresponding software icon. Re-size a window by dragging any of its four corners. Move a window by dragging its title bar.

Besides using the LaunchBar, you can also switch between softwares by pressing <Alt> +<Tab> on the keyboard. You can also right-click anywhere on the desktop to bring up a menu of softwares.

The red triangle on an software icon in the LaunchBar denotes that the software is already running. This means that you can switch to it without any delay. In the rare case where an software stops responding, right-click on its icon to force close it.

Knowing the Express Gate hot-keys

Here is a list of common-used hot-keys for Express Gate.

In the First Screen:

Key	Function
PAUSE/BREAK	Power-off
ESC	Continue to boot OS
DEL	Enter BIOS setup
F8	Enter Boot selection pop-up

In the Express Gate Environment:

Key	Function
<Alt> + <Tab>	Switch between softwares
<Ctrl> + <Alt> + <Del>	Bring up Power-Off dialog box
<Ctrl> + <Alt> + <Print Screen>	Save screen snapshot as picture to file

Using the Configuration Panel

Use the configuration panel to change various Express Gate settings.

Click on an icon to open a particular configuration tool. The following tools are available:

- **Date and Time:** set current date and time as well as time zone.
- **Input Method:** choose your preferred input language and method.
- **Language and Keyboard:** choose your language and keyboard preferences.
- **LaunchBar Setting:** customize your LaunchBar (where it docks, whether it auto-hides, etc.)
- **Network:** Specify how your computer connects to the Internet. Enable all the network ports that you may use (LAN1, LAN2, and/or wireless [optional]). LAN1 and LAN2 refer to the two RJ-45 network ports on your computer.

- The number of the LAN ports may differ from motherboards.
- You can connect the LAN cable to either port, and Express Gate will automatically use the connected port.

Also specify whether each port uses DHCP (most common) or static IP. For PPPoE and wireless (optional), set the login credentials (user name, password, SSID, etc.) as well.

- **Environment Settings:** This function allows you to clear the Express Gate settings, as well as any personal information stored by the web browser (Bookmarks, Cookies, History, etc.). The user data will be reset to the original default configuration.

  After you click **Restore System**, a confirmation dialog box will open. If you click "Yes" in the confirmation dialog box, your system will immediately restart and then re-enter Express Gate to finish clearing the settings. This is also useful in the rare case where settings might become corrupted.

The first-time Wizard will run again when you enter the Express Gate environment after clearing its settings.

- **Screen Settings:** Choose the most optimal screen resolution for your display.
- **Volume Control:** Control the volume for your speaker output, microphone input, etc.

Using the LaunchBar

The LaunchBar has several system icons that show you various system statuses and let you configure individual Express Gate settings. The LaunchBar can be configured to auto-hide, if you want more screen space for the softwares. It can also be configured to dock on any of the four sides of the screen.

Starts the **Web Browser** for quick access to the World Wide Web.

Starts the **Chat** instant messaging tool.

Start the **Skype** software, which lets you call other people on Skype for free, as well as offering affordable, high quality voice communications to phones all over the world.

Opens the **Configuration Panel**, which lets you specify network settings and other preferences.

In the rare case that one of the above softwares stops responding, you can right-click on its icon and then select **Close** to force it to close.

The smaller icons on the right side of the LaunchBar are:

Click on this icon to open the **File Manager** window, which lets you conveniently access the files on a USB drive. If a USB device is detected, the icon contains a green arrow.

ASUS Express Gate supports file uploading and downloading on USB drives in FAT16/32 format only.

Shows network status; click to configure network.

Shows mute status; click to change volume.

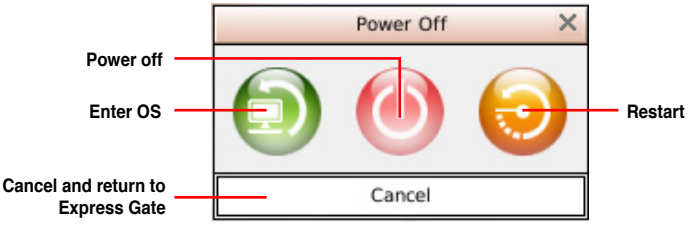
Click to choose input language and method as well as keyboard shortcuts (Ctrl-Space by default).

Click to change LaunchBar options (auto-hide, docking position, etc).

Click to show “About Express Gate ”.

Click to open Express Gate Help.

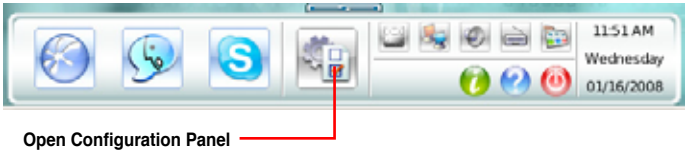
Click to bring up power options window to boot to OS, restart or power down. This window is also shown when you press **Ctrl-Alt-Del** on the keyboard.



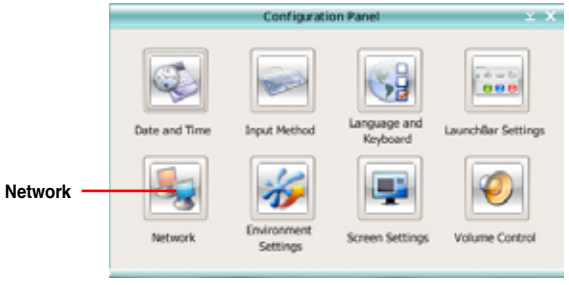
How Do I Get on to the Internet

If Internet doesn't seem to be working in the Express Gate environment, check the following:

1. **Open the Configuration Panel.**

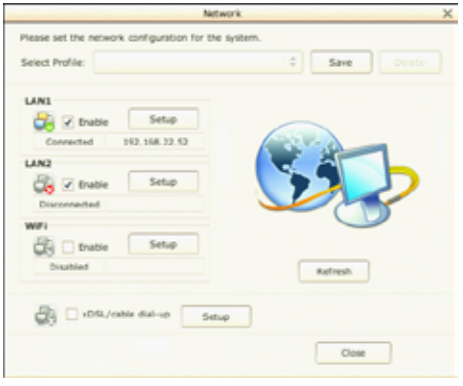


2. **Open Network.**



3. **Make the proper network configurations.**

   Each network interface is enabled immediately when you check the box next to it.



- If you use a network cable connected to a home router (which is then connected to your DSL/cable modem), enable both LAN1 and LAN2. Express Gate will automatically use whichever port (LAN1 or LAN2) is connected.

If you plug the network cable into a different port while Express Gate is running (e.g. move the cable from LAN1 to LAN2), you may need to press the "Refresh" button to detect the change.

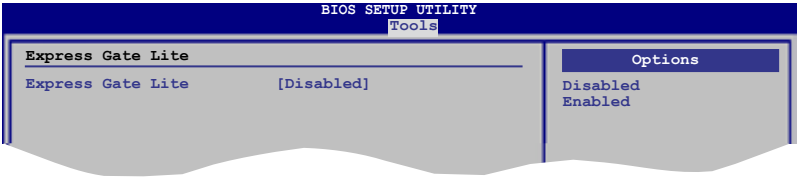
- The most common scenario is for your computer to automatically obtain network settings (i.e. DHCP). If this is the case, you don't need to click **Setup** for any LAN port. If this is not the case, click **Setup** to configure the static IP settings manually.
- If you use wireless, click **Setup** for the WiFi option. In the **WiFi** tab of the **Advanced Network Settings** box, enter the name of your wireless access point in the **SSID** field. If your wireless access point has security enabled, select the corresponding security algorithm from the drop-down list (e.g. WEPAUTO) in the **Encryption Type** field, and enter the password.

  Click **OK** to enable WiFi and establish the wireless connection.
- If you use a network cable connected directly to your DSL/cable modem (no router in between), click **Setup** for xDSL/cable dial-up. This method is also referred to as PPPoE. Choose whether the DSL/cable modem is connected to your computer's LAN port. Then enter the username and password for your dial-up account.

  Click **OK** to enable xDSL/cable dial-up and establish the PPPoE connection. When PPPoE is enabled, the port it uses will automatically be unchecked and grayed out.

Configuring Express Gate in BIOS Setup

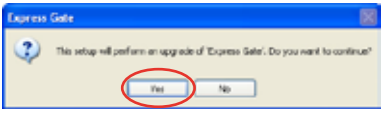
Enter BIOS setup by pressing DEL key after powering on or by clicking on the BIOS setup icon on Express Gate 's first screen. Express Gate configuration options are under the **Tools** menu. Refer to section **2.7.2 Express Gate** for details.



Updating Express Gate

You may update your existing Express Gate software to new versions. New versions of the Express Gate software will be released regularly, adding refinements or new applications. You can find original version of the software on the support DVD or download new versions from the ASUS support website.

To update Express Gate:



1. Double-click the Express Gate setup file to start software update.
2. A software update confirmation dialog box appears. Click **Yes** to continue.
3. The InstallShield Wizard for Express Gate appears. Click **Next** to continue.
4. Follow the screen instructions to complete installation.

Repairing Express Gate

In case Express Gate cannot start normally, you can repair Express Gate by reinstalling the software or using the repairing utility.

To repair Express Gate:

- Click **Start > All Programs > Express Gate > Express Gate Installer > Repair this software**.

  OR

- Double click the Express Gate setup file, choose **Repair**, and click **Next** to continue.

3.4 ATI® Hybrid CrossFireX™

The motherboard supports the ATI® Hybrid CrossFire™ technology that allows you to install multi-graphics processing units (GPU) CrossFireX cards.

3.4.1 System requirements

Before using ATI Hybrid CrossFireX, ensure that your system meets the following basic requirements:

- Operating System: Windows® Vista
- Memory capacity: Minimum 1GB
- CPU: AM2+
- On-board graphics card RAM: 256MB
- Add-on GPU: HD2400 PRO/HD2400 XT/HD3450/HD3470

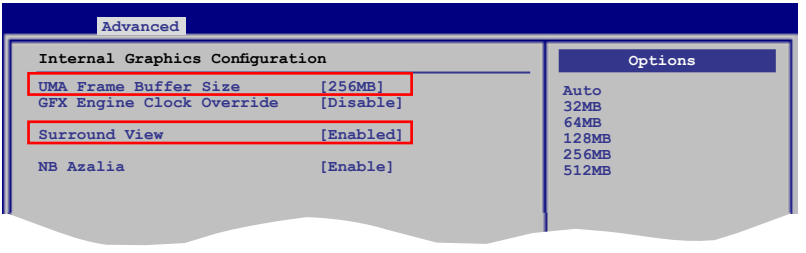
We recommend that you use a graphics card with an HD2400 PRO GPU.

3.4.2 Before you proceed

Configure the BIOS settings for the graphics card to support ATI Hybrid CrossFireX.

To set Internal Graphics

1. Press <Del> during the Power-On-Self-Test (POST) to enter the BIOS Setup utility.
2. Select **Advanced > Chipset > Internal Graphics Configuration**, set **UMA Frame Buffer Size** to [256M], and set **Surround View** to [Enabled].



3. Press <F10> to save the changes and exit BIOS settings. Select **OK** to confirm.

3.4.3 Installing AMD Chipset Driver

To install the driver that supports Hybrid CrossFireX technology:

1. Insert the Support DVD that comes with your motherboard into the optical drive. The DVD automatically displays the Drivers menu if Autorun is enabled in your computer.

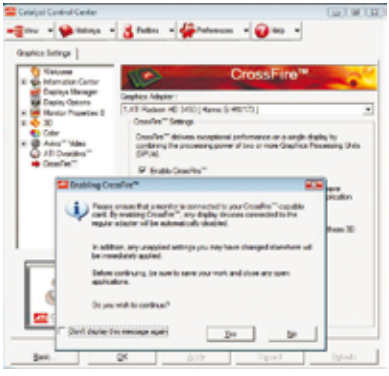
If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the DVD.

2. From the Drivers menu, click **AMD Chipset Driver** to install it. Follow the onscreen instructions to finish the installation.
3. Restart your computer after the installation is completed.
4. When the system restarts, wait for a few seconds for the driver to load automatically.

3.4.4 Using the ATI CATALYST® Control Center

Using an add-on graphics card

1. Install a graphics card onto your motherboard. Refer to the User Guide that comes with your graphics card for details.
2. Right-click on the Windows® desktop, then click **ATI CATALYST(R) Control Center** from the shortcut menu. The ATI CATALYST Control Center screen appears.
3. Click **Graphics Settings** > **CrossFire™**, then select the **Enable CrossFire™** check box. When a confirmation message pops up, click **Yes**. The screen blacks out for about one minute.
4. Click **OK**. The add-on graphics card is set to be the main monitor.



Using the onboard graphics card

1. Right-click on the Windows® desktop, and then click **ATI CATALYST(R) Control Center** from the shortcut menu. The ATI CATALYST Control Center screen appears.
2. Click **Graphics Settings > CrossFire™**, then clear the **Enable CrossFire™** check box. When a confirmation message pops up, click **Yes**. The screen blacks out for about one minute.
3. Click **OK**.

4. Right-click on the Windows® desktop, then click **Personalize** from the shortcut menu.
5. Click **Display Settings**. Select **[Default Monitor] on ATI Radeon HD 3200 Graphics**, then select the check boxes of **This is my main monitor** and **Extend the desktop onto this monitor**. Click **OK**, and then **Yes** from the confirmation window.
6. Restart the system. Right-click on the Windows® desktop, then click **ATI CATALYST(R) Control Center** from the shortcut menu. The ATI CATALYST Control Center screen appears.
7. Click **Graphics Settings** > **CrossFire™**, then select the **Enable CrossFire™** check box. When a coonfirmation pops up, click **Yes**. The screen blacks out for about one minute.
8. Click **OK**. The onboard graphics card is set to be the main monitor.

If you are using both an add-on and the on-board graphics cards at same time and want to set the onboard graphics card as your main monitor, follow the instructions on the next page.

1. Follow steps 1 to 3 on **Using the onboard graphics card**.
2. From the ATI CATALYST(R) Control Center screen, click **Display Manager** > **Graphics Adapter**. Select **ATI Radeon HD 3200 Graphics [Gabbs, G HW173]**. Click **OK**, and then **Yes** from the confirmation window.
3. Follow steps 6 to step 8 on **Using the onboard graphics card** to complete the process of setting up the onboard graphics card as your main monitor.